Medical TIMES

THE JOURNAL OF GENERAL PRACTICE

Metabolic Function Tests in Diabetes
Emergency Treatment of Arrhythmias
Citric Acid Intoxication
Sclerosing Varicose Veins
Treatment of the Burn Patient
Pulmonary Emphysema
The Three Phases of Sexual Development
Mitral Stenosis
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VOL. 84 APRIL 1956 NO. 4

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Ritalin is a mild, safer central-nervous-system stimulant which gently improves mood, relieves psychogenic fatigue "without let-down or jitters . . ."[1] and counteracts oversedation caused by barbiturates, chlorpromazine, rauwolfia, and antihistamines.

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References: 1. Pocock, D. G.: Personal communication. 2. Harding, C. W.: Personal communication. 3. Hollander, W. M.: Personal communication.

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FIRST

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1. Silbert, N.E.: Ann. Allergy 10:328 (May-June) 1952

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Each BUFFERIN tablet contains 5 grains of acetylsalicylic acid and the antacids magnesium carbonate and aluminum glycinate.



REFERENCES:
1. J.A.M.A. 159: 645 (Oct. 15) 1955.
2. J.A.M.A. 158: 386 (June 4) 1955.

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Each TRIDAL Tablet contains 50 mg. of Dactil and 5 mg. of Piptal. Bottles of 50 compressed, uncoated tablets.

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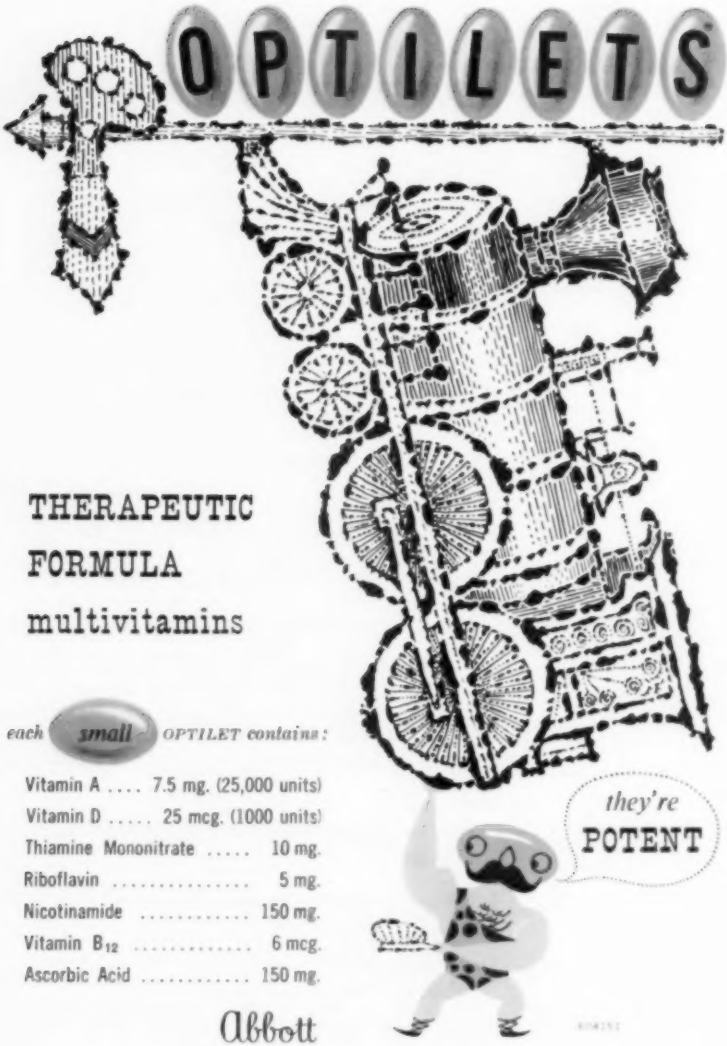
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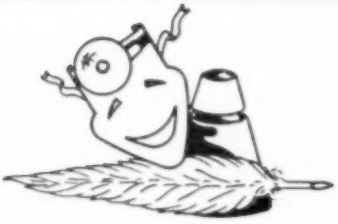
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Mol-Iron® with Calcium and Vitamin D. Therapeutic amounts of iron, plus ample amounts of Vitamin D and phosphorus-free calcium.

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Off the Record . . .

True Stories From Our Readers

Each incident described has been contributed by one of our readers. Contributions describing actual and unusual happenings in your practice are welcome. For obvious reasons only your initials will be published. An imported German apothecary jar will be sent in appreciation for each accepted contribution.

Having Sleeping Troubles?

I had a very nervous female patient who could not sleep. One day, her distraught husband came to the office and asked me if I could give her some nerve medicine so she could sleep. I gave him one of my pet phenobarbital mixture prescriptions. One month later I saw him on the street and asked him how his wife was, to which he replied:

"Doc, when I came to you for that nerve medicine, she couldn't sleep, and I couldn't sleep with her. Now, after taking two bottles of your medicine, anybody can sleep with her."

A.C., M.D.
Somerset, Kentucky

Mothers Little Problem

A four year old girl, patient of mine, fell while playing and sustained a deep laceration of her chin. Her mother told the child that she must be taken to the "Doctor Man." "Why?" asked the child. "Because," she answered, you have a hole in your skin and the Doctor Man must sew it up."

Six weeks later the child ran in from play and said, "Mommie, take me to Doctor Man". "Why"? asked her mother. "I find 'nother hole'," she said, pointing to her vagina.

W.R.V., M.D.
San Francisco 16, Calif.

Perfectionists?

Two children were given a tuberculin patch test. The parents, sticklers for detail and accuracy, were told to remove the patches in 2 days and return to the office 2 days later. After the required time elapsed, doting Daddy proudly came in bearing 2 slightly used patches clearly marked "Wanda" and "Tommy" —the kids were at home.

J.B., M.D.
Gadsden, Alabama

—Concluded on page 21a

DRAMAMINE® IN VERTIGO

Notes on Diagnosis and Management of "Dizziness"

I. Vertigo

"Dizziness" should be considered the tangible symptom of a specific pathology.

Moderate vertigo, with a sense of motion and a whirling sensation, may be produced by infection, trauma or allergy of the external or middle ear. Examination of the ear will usually disclose the abnormality.

Severe vertigo, which will not permit the patient to stand and causes nausea and vomiting, indicates an irritation or destruction of the labyrinth. The specific condition may be



1. The Rotation (swivel chair) Test.

The patient sits in a swivel chair with his eyes closed and his head on a level plane. The chair is turned through ten complete revolutions in twenty seconds. Stimulation of a normal labyrinth will cause nystagmus, past pointing of the arms and subjective vertivo.



3. Bárány Pointing Test. *The patient points at a stationary object, first with his eyes open and then closed. A constant error in pointing (past pointing) with his eyes closed in the presence of vertigo indicates peripheral labyrinthine disease or an intracranial lesion.*

labyrinthine hydrops, an acute toxic infection, hemorrhage or venospasm of the labyrinth or a fracture of the labyrinth. Multiple sclerosis and a pathology of the brain stem should be considered also.



2. The Caloric (Bárány) Test.

The patient sits with his eyes fixed on a stationary object and the external ear canal is irrigated with hot (110 to 120 F.) or cold (68 F.) water. If the vestibular nerve or labyrinth is destroyed, nystagmus is not produced on testing the diseased side.

It is important to learn if the patient's sensation is continuous or paroxysmal.[2] Paroxysmal vertigo suggests specific conditions: Ménière's syndrome, cardiac disease and epilepsy. Continuous vertigo without a pattern may be due to severe anemia, posterior fossa tumor or eye muscle imbalance.

Dramamine® has been found invaluable in many of these conditions. In mild or moderate vertigo it often allows the patient to remain ambulatory. A most satisfactory treatment regimen for severe "dizziness" is bed rest, mild sedation and the regular administration of Dramamine.

Dramamine is also a standard for the management of motion sickness, is useful for relief of nausea and vomiting of radiation sickness, eye surgery and fenestration procedures.

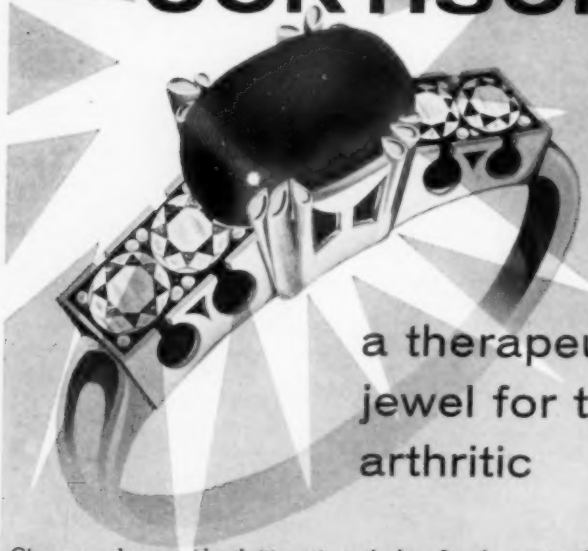
Dramamine (brand of dimenhydrinate) is supplied in tablets (50 mg.) and liquid (12.5 mg. in each 4 cc.). G. D. Searle & Co., Research in the Service of Medicine.

1. Swartout, R., III, and Gunther, K.: "Dizziness": Vertigo and Syncope, GP:*835* (Nov.) 1953.

2. DeWeese, D. D.: Symposium: Medical Management of Dizziness: The Importance of Accurate Diagnosis, Tr. Am. Acad. Ophth. *58*:694 (Sept.-Oct.) 1954.

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NEOCYLATE TRADEMARK WITH CORTISONE



a therapeutic jewel for the arthritic

Gives your rheumatoid arthritis patients the benefits of potentiated salicylate and potentiated cortisone... permits smaller, effective cortisone dosage, thus minimizing the risk of undesirable side effects.

Each enteric-coated NEOCYLATE with CORTISONE tablet contains:

Cortisone Acetate	5 mg. (1/12 gr.)
Ammonium Salicylate	0.25 Gm. (4 gr.)
Potassium Para-Aminobenzoate	0.32 Gm. (5 gr.)
Ascorbic Acid (Sodium-Free)	20 mg. (1/3 gr.)

Average Dosage: For acute cases, 8 to 10 tablets daily in divided doses. Maintenance, 1 or 2 tablets four times daily.

Supplied: Bottles of 50, 100, and 200 tablets.

Literature on request

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It's not a distress call... not yet... but it could be— For effective appetite suppression in obesity...

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TABLETS AND EXTENTABS*

The "distress call" in obesity often comes from the emotional "misfit," unable to control mood or appetite. Ambar allays this hunger sensation by *gently* lifting the depressed mood, and *subtly* reducing the emotional distresses so often responsible for the urge to overeat. Ambar brings the obese patient's appetite "down to normal"...

...without peaks of stimulation
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...without significant cardiovascular effects
...without postmedication "jitters"

AMBAR™ TABLETS

Methamphetamine Hydrochloride . . 3.33 mg.
Phenobarbital (1/3 gr.) . . . . . 21.6 mg.

Average duration of therapeutic effects 4 hours

AMBAR™ EXTENTABS*

Methamphetamine Hydrochloride . . 10.0 mg.
Phenobarbital (1 gr.) . . . . . 64.8 mg.

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Literature available on request.

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Your telephone could ring at this very moment, calling you to a respiratory emergency. At such times, the handy ampuls of Coramine in your bag may tilt the balance of life. "Coramine . . . is a quick acting analeptic, vasopressor and respiratory stimulant. . . . It . . . helps to restore normal vascular tone, increase cardiac efficiency, deepen respiration and combat anoxemia."[1]



Supplied: Each form of issue is a 25% aqueous solution of nikethamide. *Ampuls*, 1.5 ml.; cartons of 5, 20 and 100. *Ampuls*, 5 ml.; cartons of 3, 12 and 100. *Multiple-dose Vials*, 20 ml.; cartons of 1. Also available: Coramine Oral Solution.

1 Watts, J. C., and Ruthberg, J.: Ann. Int. Med. *29*: 1104 (Dec.) 1948.

CIBA

SUMMIT, N. J. 2/21988

—Concluded from page 15a

Wife's Concern?

At breakfast the other day, a middle-aged woman visitor happened to notice a popular geriatric preparation on the table. As my mother-in-law took one of the capsules, our visitor inquired what they contained.

I looked up the formula on the bottle and told her that in addition to other things there was a fair amount of male and female hormones. The husband then said, "Which one has the most effect?" Immediately, the wife replied, "It doesn't make any difference, dear, don't take any, I don't want you to take any chances."

J. W. E., M.D.
Baltimore 15, Maryland

Believing Soul

A woman in the tenth decade of life was brought to my office recently for an examination. As the nurse exposed the chest I noticed that she was wearing a pair of "falsies." "Why do you wear them?" I asked. "They tells me that they keeps you warm," she replied.

J.M.B., M.D.
Shreveport, Louisiana

Child Prodigy . . .

Mrs. G. advised me that her little son had showed his usual astuteness in putting two and two together. He said—"Mommy, I know why you're getting so big in the tummy. That doctor blows you up with that thing he puts around your arm."

R.C.C., M.D.
Bremerton, Washington

Hot Spot!

My assistant had been a top notch football player, college and pro. One night he had to deliver one of my obstetrical patients two months premature, so even though it was a breech he was not much concerned when the baby started to deliver before I got there. The feet and buttocks delivered easily and he noticed the time and started to pull harder to speed up the delivery. The shoulders slipped out with normal pressure then the rest just dropped out. As he told me later, "My God Doc, it looked like I pulled its head right off!" Then he recovered from his shock as he discovered it was an Acranius but he was still weak and nervous for quite a while.

H.S.O., M.D.
Tulsa, Oklahoma

Explanation Please!

A patient not long married came to the office and after examination for symptoms was directed to return the following day with a 24-hour specimen.

That evening, using one of several similar kitchen jars, she put the specimen in the refrigerator.

Since she felt unwell the next morning her husband got up to fix a little breakfast before going to work. Several minutes later he came back to the bedroom looking very much disturbed and said, "What's the matter with the pineapple juice?" She took one look at the jar he held in one hand and the glass in the other and said, "O God, I knew there was something I wanted to tell you!"

M.J.B., Sec.
Baltimore 2, Maryland



All the

Multiple Compressed Tablets 'Co-Deltra' and 'Co-Hydeltra' are unique among the dosage forms of the newer steroids, because they are specifically designed as a tablet within a tablet to provide stability and to release in sequence, antacid and anti-inflammatory agents . . .

1. the outer layer of antacids (aluminum hydroxide gel and magnesium trisilicate) comes into contact with the gastric mucosa first . . . and after it is completely dissolved . . .

2. the hitherto intact inner core containing the anti-inflammatory agent (either prednisone or prednisolone) then begins to release its full therapeutic potential . . . and not before.

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Multiple Compressed Tablets

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Prednisone Buffered

benefits of prednisone and prednisolone plus positive antacid action to minimize gastric distress...

A reportedly higher incidence of gastric distress in patients receiving the newer steroids prednisone and prednisolone indicates the desirability of co-administering non-systemic antacids.[1]

To help the physician cope with this problem of gastric distress which might otherwise become an obstacle to therapy with the newer steroids, Multiple Compressed Tablets 'Co-Deltra' (Prednisone Buffered) and 'Co-Hydeltra' (Prednisolone Buffered) are now available.

'Co-Deltra' and 'Co-Hydeltra' are now available in bottles of 30 on your prescription. Each Multiple Compressed Tablet contains:

Prednisone or Prednisolone, 5 mg.; 300 mg. of dried aluminum hydroxide gel, U.S.P., and 50 mg. of magnesium trisilicate.

'Co-Deltra' and 'Co-Hydeltra' are trade-marks of Merck & Co., Inc.

1. Bollet, A. J., Black, R., and Bunim, J. J.: *J.A.M.A.* **158**: 459, June 11, 1955.

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Prednisolone Buffered

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In a new flavorful elixir... **Serpedon**

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the tranquilizing antispasmodic

for rapid relief of abdominal spasm



SERPEDON* swiftly relieves gastrointestinal spasm and provides *tranquilization*, without the use of a habit forming drug.

SERPEDON combines:

1. three alkaloids of belladonna, equivalent to 7 minims of the tincture, for high efficacy in relaxing gastrointestinal muscle spasm; and

2. reserpine to calm the patient and obviate anxiety symptoms.

There is no dulling of the senses, and the patient may actively pursue his daily routine.

Supplied: SERPEDON Elixir in bottles containing one pint. **SERPEDON Tablets** in bottles of 100 and 1,000 scored tablets.

*Trademark

Walker LABORATORIES, INC., MOUNT VERNON, N.Y., U.S.A.

Diagnosis, Please!

Edited by Maxwell H. Poppel, M.D., F.A.C.R., Professor of Radiology,
New York University College of Medicine and Director of Radiology, Bellevue Hospital Center

WHICH IS *YOUR* DIAGNOSIS?

1. Malignancy of stomach
2. Pre-pyloric ulcer
3. Duodenal ulcer
4. Normal
5. Gastritis

(ANSWER ON PAGE 130a)



How CARNATION INSTANT provides new dietary advantages not possible with other forms of nonfat milk

Because Carnation Instant is a new *crystal form* of nonfat dry milk, the physician may specify a greater ratio of milk solids to water than supplied by bottled nonfat milk. The new crystal form may also be added to *whole* milk to increase its nutritive content.



WHEN LIQUIDS ARE RESTRICTED, the physician may specify an additional heaping tablespoon of Carnation crystals per glass (or ⅓ cup additional crystals per quart.) This "self-enrichment" provides a 25% increase in protein, calcium and B-vitamins with no increase in liquid bulk.

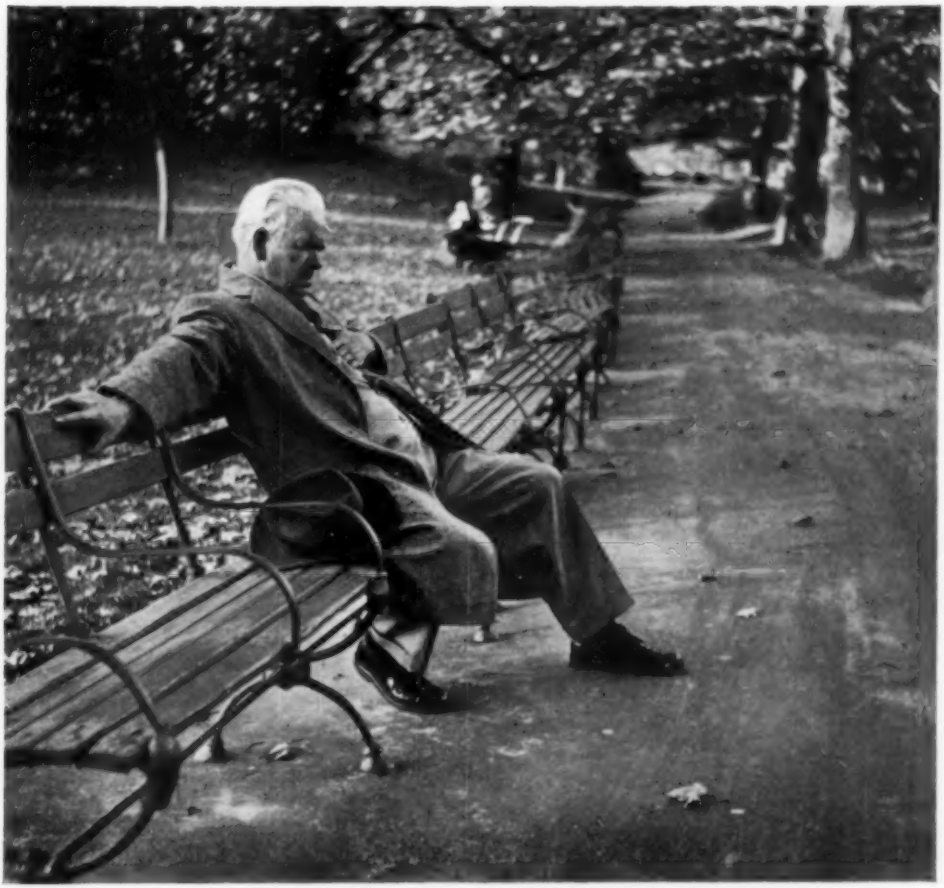
25% "self-enriched" Carnation Instant also provides a more familiar heavier texture and richer flavor, well-liked by patients who are accustomed to drinking whole milk.

WHEN PROTEIN NEEDS ARE HIGH, the physician may recommend the addition of 1⅓ cups Carnation crystals to each quart of *whole* milk. This *doubles* the protein, calcium and B-vitamin content.

The use of Carnation Instant in whole milk is of value for children who are in a temporary phase of "milk resistance"... and is also useful in increasing the protein in convalescent diet without increasing bulk.

Other advantages of the Carnation exclusive Crystal Form

Fresh milk flavor, delicious for drinking.
Mixes instantly in ice-cold water.
Does not cake or harden in the package.
No special recipes needed.
Economical, available everywhere.



to improve
respiration in cardiac
decompensation

Coramine®

(nikethamide CIBA)

ORAL SOLUTION *(25% aqueous)*

Coramine is a proved respiratory and central nervous system stimulant, useful in controlling Cheyne-Stokes respiration and paroxysmal dyspnea associated with cardiac decompensation.

The choice of oral or intravenous therapy depends upon the seriousness of the situation. When a prompt response is necessary, the intravenous route is preferred. Oral administration produces a slow, progressive improvement—usually one to three days elapse before the optimum benefit is realized.

Since Coramine is rapidly and completely absorbed from the gastrointestinal tract, the Oral Solution (3 to 5 ml., three to five times a day) may be administered in cases of chronic cardiac decompensation or in convalescence following acute coronary occlusion.

SUPPLIED
Oral Solution: bottles of 1 and 3 fluidounces and bottles of 1 pint. Also available for intravenous or intramuscular use: *Ampuls*, 1.5 ml. and 5 ml.; *Multiple-dose Vials*, 20 ml.

CIBA
SUMMIT, N.J.
2/22250

Altepose®

keeps her appetite—and weight—under control

MAJOR ADVANTAGES: 1. Overcomes excessive craving for food. 2. Reduces tissue water retention. 3. Alleviates nervousness and irritability.



It's much easier for your overweight patient to pass up rich food—when she's taking ALTEPOSE. For ALTEPOSE contains 3 important ingredients which help overweights stay on their reducing diets.

1. *Propadrine*® controls the patient's craving for food—and yet it causes less central stimulation than does either ephedrine or amphetamine.

2. *Thyroid* helps release tissue-bound water—thus brings about weight-loss *early* in the dieting period.

3. *Delvinal*® relieves the irritability so often associated with rigid diets.

Each ALTEPOSE Tablet contains 50 *mg.* 'Propadrine' HCl, 40 *mg.* thyroid and 25 *mg.* 'Delvinal.'

SHARP & DOHME

Philadelphia 1, Pa.
DIVISION OF MERCK & CO., INC.

Coroner's Corner

Specific Evidence

The following case illustrates the important role played by group specific substances in a medicolegal investigation.

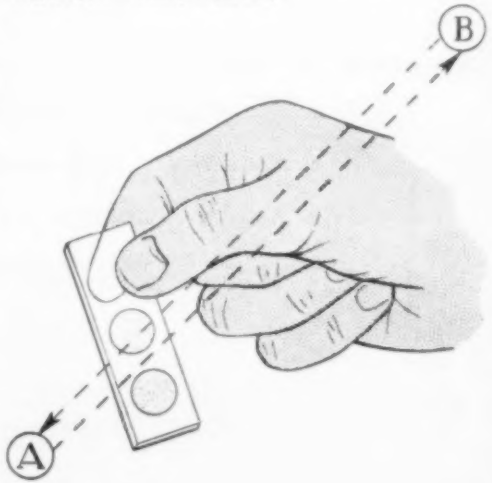
After midnight a man was seen to carry a woman out of a tenement and deposit her on the sidewalk. The police were notified, and they found the woman dead, in the supine position. Not far from the body were two knotted handkerchiefs. Then a man resembling the one who had carried the body appeared with a bundle which contained an empty wine bottle. He denied that he had ever seen the deceased before or that she had ever been in his apartment. His apartment was examined and on the linoleum was a dried shiny stain similar to that made by serous fluid. This stain, the handkerchiefs, blood and scalp hair from defendant and deceased were sent to the laboratory.

In the meantime an autopsy proved that death was due to strangulation, and in addition revealed postmortem lividity and pressure marks on the front of the body and face, which were not compatible with her supine position on the sidewalk. A large amount of alcohol was found in her brain on toxicologic examination. The stain on the linoleum by the absorption test showed the presence of group specific substance A. The blood of the deceased belonged to group A. The blood of the defendant was group B. The knotted handkerchiefs found near the body contained group specific substance B, probably from nasal secretion.

When confronted with the evidence and its implications, the defendant finally confessed that the deceased had been in his room drinking and that he had strangled her during a sudden quarrel. He had allowed the body to lie face down on the linoleum for several hours until he could find an opportunity to carry it out to the sidewalk. During that interval edema fluid oozed from her nose and dried on the linoleum.

He also admitted ownership of the knotted handkerchiefs which, in addition to the group specific substance B, held some light brown hairs in the knots and these were similar to the scalp hairs of the deceased. The laboratory findings, the autopsy and investigation completely confirmed his confession.

(From Gonzales, T.A., Vance, M., Helpern, M., and Umberger, C.P.: "Legal Medicine, Pathology, and Toxicology", Appleton-Century-Crofts, Inc.)



MEAD

it's easier to specify

the 'Deca' vitamin family

10 nutritionally significant vitamins . . . A, D, and C, plus 7 B-complex factors including B_6 and stable B_{12}

solution

Deca-Vi-Sol

the dropper dosage form for infants and toddlers

In 15, 30 and economical 50 cc. bottles

emulsion

Deca-Mulcin

the teaspoon dosage for preschoolers

Pouring lip bottles of 4 and 8 oz.

3 convenient dosage forms—all with stable B_{12}

3 months | 6 months | 9 months | 1 year | 2 years | 3 years | 4 years | 5 years | 6 years









it's easier because

- One basic family name—'Deca'
- One basic formulation
- One standard of truly comprehensive protection

. . . providing assured protection against vitamin inadequacies of "normal" diets during the vital first decade

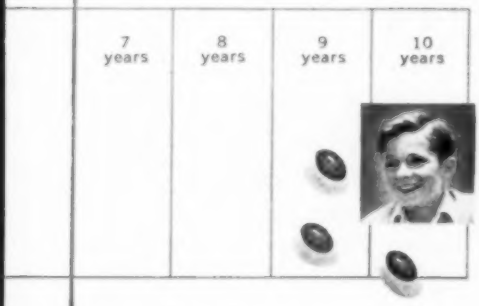
in the vital first decade...

capsules

Deca-Vi-Caps

small, easy-to-take capsules for school agers

Bottles of 30.



...and in the critical first months of life— select the level of vitamin protection the baby needs

Deca-Vi-Sol

10 nutritionally significant vitamins including B_6 and stable B_{12}

Poly-Vi-Sol®

6 essential vitamins

Tri-Vi-Sol®

3 basic vitamins

Highly stable—
refrigeration not required

Readily accepted—
exceptionally pleasant taste

Full dosage assured—
can be dropped directly into the baby's mouth

All are supplied in 15 cc., 30 cc., and economical 50 cc. bottles with

Plastic 'Safti-Dropper'
Won't break!
Won't chip!



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SYMBOL OF SERVICE IN MEDICINE

MEAD JOHNSON & COMPANY, EVANSVILLE 21, INDIANA, U.S.A.

Upjohn

Ulcer protection that lasts all night:

Pamine* BROMIDE

Tablets

Each tablet contains:
Methscopolamine bromide ..... 2.5 mg.

Average dosage (ulcer):
One tablet one-half hour before meals, and 1 to 2 tablets at bedtime.

Supplied: Bottles of 100 and 500 tablets

Syrup

Each 5 cc. (approx. 1 tsp.) contains:
Methscopolamine bromide ..... 1.25 mg.

Dosage:
1 to 2 teaspoonfuls three or four times daily.

Supplied: Bottles of 4 fluidounces

Sterile Solution

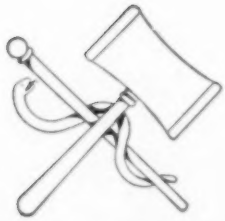
Each cc. contains:
Methscopolamine bromide ..... 1 mg.

Dosage:
0.25 to 1.0 mg. (¼ to 1 cc.), at intervals of 6 to 8 hours, subcutaneously or intramuscularly.

Supplied: Vials of 1 cc.

*TRADEMARK, REG. U. S. PAT. OFF.—THE UPJOHN BRAND OF METHSCOPOLAMINE

The Upjohn Company, Kalamazoo, Michigan



What's Your Verdict?

Edited by Ann Picinich, Member of the Bar of New Jersey

A physician or surgeon who undertakes to treat a patient must meet these requirements: (1) He must possess that degree of learning, skill and ability which others similarly situated ordinarily possess; (2) he must exercise reasonable care in the application of his knowledge and skill; and (3) he must use his judgment in the treatment and care of his patient. In this case a surgeon is sued for failure to explain to his patient the risk involved in a proposed operation.

The patient was injured by a sharp piece of steel about 3/8″ x 2/8″ x 2/8″, which penetrated his body at the left front side of the neck just above the collar bone. The wound bled about twenty minutes, but there was little pain, no fever, and no apparent adverse effects. The injured man consulted the surgeon as to the necessity of an operation.

After a series of x-rays the surgeon stated that he thought the metal was moving down and might reach the heart. He strongly recommended an operation for its removal. The patient inquired as to the seriousness of the operation, in answer to which he was assured: "It is very simple. There is nothing to it."

The operation was performed, but the metal could not be located, and the patient lost the use of his left arm as a result.

Counsel for the plaintiff urges that the surgeon was negligent in representing that the operation was a simple one which entailed no danger to the plaintiff's body. But for such representations, the plaintiff would not have submitted to the operation.

At the close of plaintiff's case his action was dismissed for failure to show that the surgeon acted other than in good faith and in the exercise of sound judgment.

On appeal, how would you decide?

* * *

The Supreme Court affirmed the decision of the trial court.

"The plaintiff's evidence supports a finding that the operation was of a very serious nature. But it is understandable that the surgeon reassured the patient so that he would not be unduly apprehensive. Failure to explain the risk involved, therefore, may be considered a mistake, but it cannot be deemed such want of ordinary care as to import liability."

A concurring opinion suggests that plaintiff might have been more successful in an action for fraudulent representations, rather than negligence.

Based on decision of
Supreme Court of North Carolina



for faster convalescence . . .

fewer complications *after major surgery, illness, injury*

Cerofort tablets

(Critically essential L-lysine plus all the important vitamins)

In stress situations hypoproteinemia and/or vitamin deficiency states may be responsible for these complications[1,2]:

- *decreased resistance to infection*
- *increased susceptibility to shock*
- *retarded wound healing and callus development*

At the time when the need for high quality protein is the greatest, too many convalescents choose lysine-deficient wheat and cereal proteins.

Efficient protein synthesis requires all the essential amino acids, simultaneously, and in the correct proportions.[3]

Efficient protein synthesis also requires ample supplies of vitamins.[4]

Three Cerofort Tablets daily, *one with each meal,* supply:

L-Lysine Monohydrochloride	790 mg.*
Vitamin A	25,000 U.S.P. units
Vitamin D	1,000 U.S.P. units
Thiamine Mononitrate	10 mg.
Riboflavin	10 mg.
Pyridoxine Hydrochloride	2 mg.
Niacinamide	100 mg.
Calcium Pantothenate	20 mg.
Vitamin B_{12} Activity (Cobalamin)	4 mcg.
Folic Acid	1.5 mg.
Ascorbic Acid	300 mg.

**Equivalent to 600 mg. L-lysine*

Supplied in bottles of 60 tablets.

References: 1. Rhoads, J.E.: Internat. Abstr. Surg. *94*:417, 1952. 2. Mecray, P., Jr.: Am. J. Clin. Nutrition *3*:461, 1955. 3. Cannon, P.R.: J.A.M.A. *135*:1043, 1947. 4. Halpern, S.L., in Nutrition in Infections, Miner, R.W., ed.: Ann. New York Acad. Sc. *63*:147, 1955.

and for the special nutritional needs of growing children, adolescents, and the elderly:

Cerofort elixir

(L-lysine plus important B vitamins)

first with lysine

White's

WHITE LABORATORIES, INC., Kenilworth, N. J.

continuing benefits

in corticosteroid therapy

METICORTELONE

PREDNISOLONE

- enhanced potency
- excellent relief
- significantly less edema
- convenience of more oral dosage forms



the original prednisolone

METICORTELONE

corticosteroid benefits with fewer electrolyte side effects in

rheumatoid arthritis

bronchial asthma

allergic and inflammatory disorders of the skin and eye

METICORTELONE® brand of prednisolone

Schering

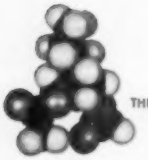


Typical case reports in code from Schering's files. Exactly matching perforations indicate treatment of similar states and demonstrate *same dosage—same response—same absence of side effects*

yet METICORTEN was used in one case; METICORTELONE, in the other.

METICORTEN,® brand of prednisone.
METICORTELONE,® brand of prednisolone.
®T.M.

Schering



THE MILTOWN MOLECULE

Two articles in the April 30th issue of The Journal of the AMA[1,2] report on . . .

an entirely new type of tranquilizer with muscle relaxant action—orally effective in

ANXIETY, TENSION and MENTAL STRESS

- no autonomic side effects—well tolerated
- selectively affects the thalamus
- not related to reserpine or other tranquilizers
- not habit forming, effective within 30 minutes for a period of 6 hours
- supplied in 400 mg. tablets. Usual dose: 1 or 2 tablets—3 times a day

1. Selling, L. S.: J.A.M.A. **157:** 1594, 1955. **2.** Borrus, J. C.: J.A.M.A. **157:** 1596, 1955.

Miltown®

the original meprobamate—2-methyl-2-*n*-propyl-1,3-propanediol dicarbamate—U. S. Patent 2,724,720

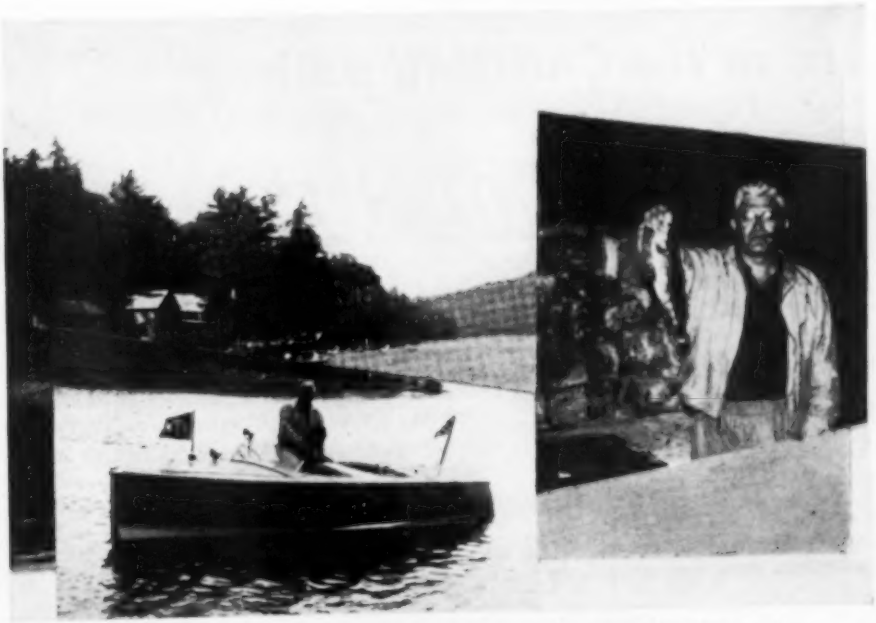
DISCOVERED AND INTRODUCED by Wallace Laboratories, New Brunswick, N. J.
Literature and Samples Available On Request

After Hours

Leisurely fishing in my inboard boat on the beautiful and scenic waters of the Adirondack Mountains in and about Old Forge, New York, is my favorite hobby. Nothing is more relaxing and pleasuresome, both physically and psychologically. The humdrum of my regular routine medical practice is completely submerged in oblivion. I rarely make a good catch or haul. Yet, I am not disappointed or in the least discouraged. The important consideration is that I feel completely relaxed and enjoy myself merely being off in the woods and on the water away from my office, the telephone and everything else connected with it. This is what I consider a prophylaxis against coronary heart trouble. Here's a hobby more busy doctors should try.

Jacob J. Wineburgh, M.D.

Utica, New York



Dr. Wineburgh relaxing at scenic waters around the Adirondack Mountains.



when STRAIN must be avoided ...as in the CARDIAC patient

KONDREMUL®

(COLLOIDAL EMULSION OF MINERAL OIL AND IRISH MOSS)

when the "going" is rough

℞ KONDREMUL
(PLAIN)

Contains 55% mineral oil; pleasantly flavored. In bottles of 1 pint.

also available

KONDREMUL WITH CASCARA
KONDREMUL WITH PHENOLPHTHALEIN

FOR CHRONIC CONSTIPATION

KONDREMUL belongs in the picture whenever *strain-free elimination* is a "must." The softening and infiltrating action of KONDREMUL results in a soft, well-formed, easily passed stool ... with no irritation, griping, or tenesmus. KONDREMUL is an outstanding mineral oil emulsion because of its high stability and the extremely small, uniform size of its oil globules, each held firmly in an envelope of Irish moss. No unpleasant leakage.

patch

THE E. L. PATCH COMPANY
Stoneham, Massachusetts



allergic dermatosis . . . after short term therapy with TERRA-CORTRIL Topical Ointment



touch and GO

administration promptly followed by remission

a typical response to dual **anti-infective** anti-inflammatory action

TERRA-CORTRIL®

brand of oxytetracycline and hydrocortisone

TOPICAL OINTMENT

combines TERRAMYCIN,® the broad-spectrum antibiotic of choice in pyogenic dermatoses, with the superior action of CORTRIL,® the topical anti-inflammatory hormone of choice.

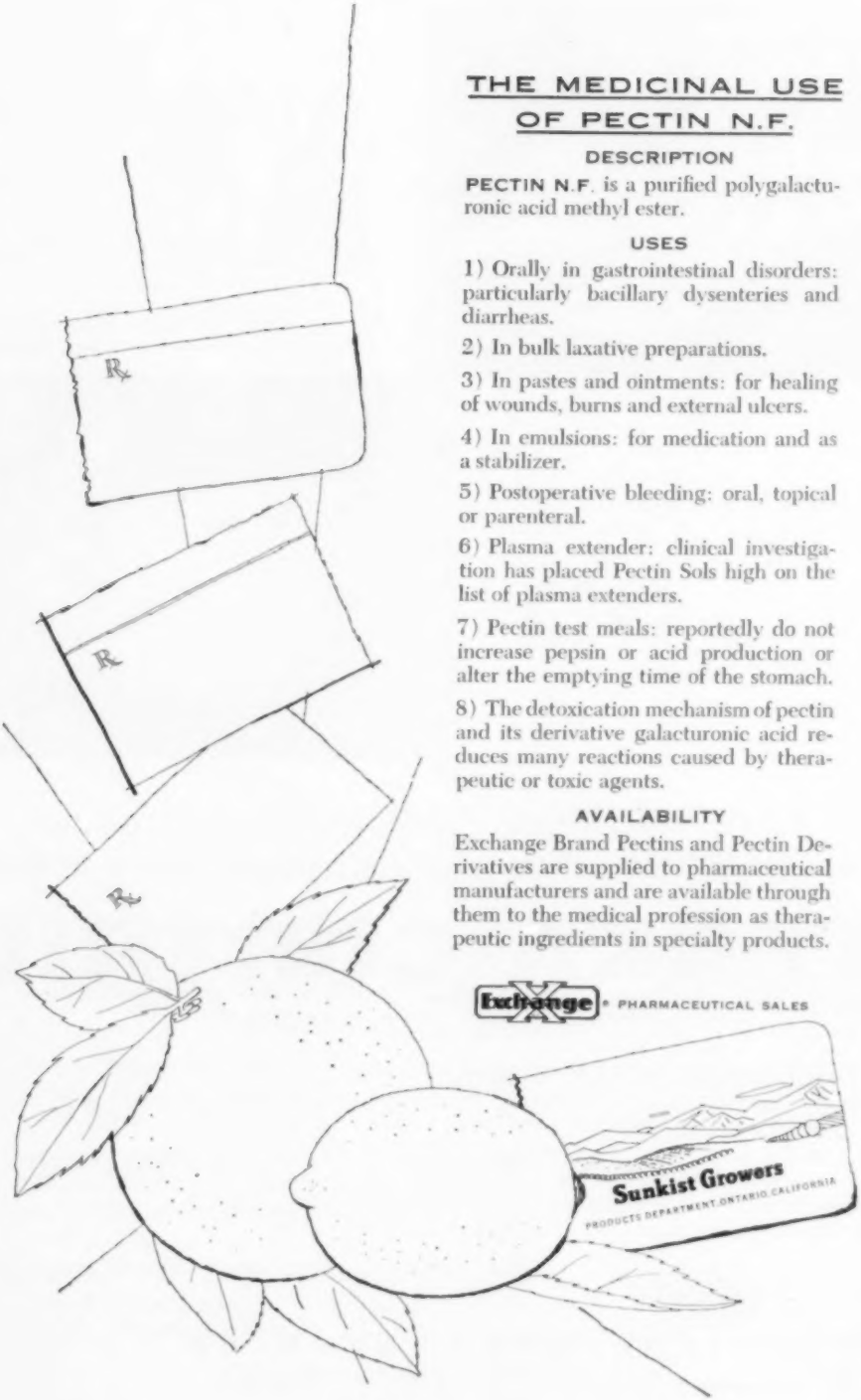
supplied: In 1/2-oz. tubes containing 3% oxytetracycline hydrochloride (TERRAMYCIN) and 1% hydrocortisone, free alcohol (CORTRIL) in a specially formulated, easily applied ointment base.

also available: CORTRIL Topical Ointment and CORTRIL Tablets.

Pfizer

PFIZER LABORATORIES

Division, Chas. Pfizer & Co., Inc.
Brooklyn 6, New York



THE MEDICINAL USE OF PECTIN N.F.

DESCRIPTION

PECTIN N.F. is a purified polygalacturonic acid methyl ester.

USES

1) Orally in gastrointestinal disorders: particularly bacillary dysenteries and diarrheas.

2) In bulk laxative preparations.

3) In pastes and ointments: for healing of wounds, burns and external ulcers.

4) In emulsions: for medication and as a stabilizer.

5) Postoperative bleeding: oral, topical or parenteral.

6) Plasma extender: clinical investigation has placed Pectin Sols high on the list of plasma extenders.

7) Pectin test meals: reportedly do not increase pepsin or acid production or alter the emptying time of the stomach.

8) The detoxication mechanism of pectin and its derivative galacturonic acid reduces many reactions caused by therapeutic or toxic agents.

AVAILABILITY

Exchange Brand Pectins and Pectin Derivatives are supplied to pharmaceutical manufacturers and are available through them to the medical profession as therapeutic ingredients in specialty products.

Exchange® PHARMACEUTICAL SALES

clinically proved in alcoholism

"ANTABUSE"

brand of DISULFIRAM (tetraethylthiuram disulfide)

Feldman reports:

"...'Antabuse' therapy constitutes a major advance in treatment."*

"The use of alcohol in an 'Antabuse'-treated patient results in physical symptoms which make continued drinking impossible . . . few if any medical contraindications exist."*

*Feldman, D. J.: Ann. Int. Med. *44*:78 (Jan.) 1956.

. . . a "chemical fence" for the alcoholic

A brochure giving full details of therapy will be sent to physicians upon request.

"ANTABUSE" is supplied in 0.5 Gm. tablets (scored), bottles of 50 and 1,000.

AYERST LABORATORIES • New York, N. Y. • Montreal, Canada

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REDUCE THE PERILS OF OBESITY

Timed AMOdex Capsules
(TESTAGAR)

The daily administration of one (1) TIMED AMO-dex CAPSULE, *without rigidly prescribed diet* will produce satisfactory weight reduction. Feinblatt et al.,* demonstrated these possibilities in patients who had extreme difficulty in adhering to well balanced, low calorie diets. *Clinically Economical.*

Request reprints and samples.

RELEASED OVER EFFECTIVE 10 TO 12 HOURS 6 TO 8 HOURS

FORMULA: Each Timed Amo-dex Capsule contains: Dextroamphetamine HCl 15 mg. and Amobarbital . . . . . 60 mg.

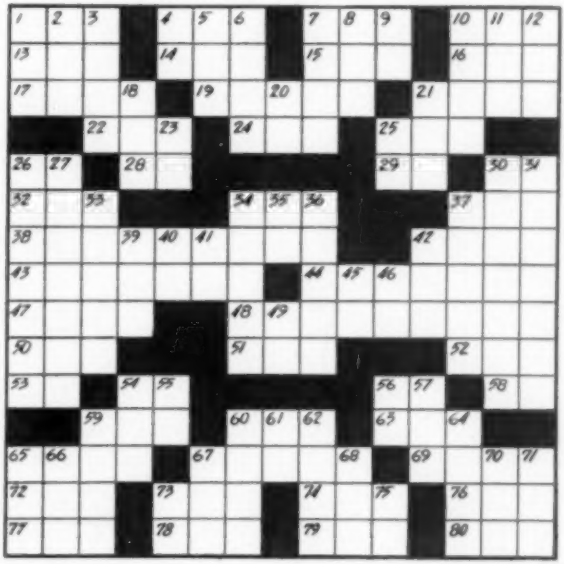
REFERENCES: *Feinblatt et al., Medical Times Vol. 34 — 3 March 1956

Testagar & Co., Inc.
DETROIT 26, MICH.

Medical Teasers

A Challenging Crossword Puzzle for the Physician

(Answers on page 138a)



Contributed by Mrs. J. N. Summerfield

ACROSS

1. Constant Principle
4. Atmosphere
7. Sub'ne-rge
10. Labium
13. Part of the Psyche
14. ———stomosis, vessel communication
15. Fetal Position (Abbr.)
16. ——scular, lacking vessels
17. Pathogenic bacterium
19. Mouths
21. ——Nitrite, vasodilator
22. Spasmodic twitching
24. Side of the pelvis
25. Swiss mountain
26. Surface tension (Abbr.)
28. About (Lat.)
29. Samarium (Symb.)
30. From (Lat.)
32. Exist
34. Exclamation of disgu t
37. English Medical Society (Init.)
38. Fimbriated
42. Oriental weight
43. Jaundice
44. Sucks up
47. Close by
48. Convulsive seizure
50. ——enmeyer Flask
51. Separation (Prefix)
52. ——ov, add (Lat. abbr.)
53. Half (Abbr.)
54. Bismuth (Symb.)
56. Milliliter (Abbr.)
58. Soap Suds
59. Three times a day
60. Touch lightly
63. Liquid fat
65. Second cervical Vertebra
67. "Wrapped up"
69. American neurologist (1852-1935) who introduced Posterior Rhizotomy for pain
72. With (Prefix)
73. Bag
74. Offspring
76. Wipe
77. Beverage
78. Anthropoid Primate
79. Infusion
80. Greek letter

DOWN

1. Lower extremity
2. Grow old
3. Herb
4. Of each
5. ——culate, introduce immune serum
6. Exanthem
7. Fall in drops
8. The lowest (Lat.)
9. Near Point (Lat. Abbr.)
10. Illuminating device
11. Poisonous plant
12. Chum
18. Middle (comb form)
20. Titanium (Symb.)
21. Wing (Lat.)
23. Cerium (Symb.)
25. Left ear (Abbr.)
26. Salts
27. Isotopes
30. Allergic reactions to E. histolytica
31. Resinous aromatic liquids
33. External
34. Founded on
35. Near
36. Cures
37. ———te, leeches
39. More (Adj. suffix)
40. Near (Abbr.)
41. International Unit
42. Highest point
45. Barium (Symb.)
46. Small (Abbr.)
49. Color Index (Abbr.)
54. Twice (Prefix)
55. Primitive psychic force
56. Molybdenum (Symb.)
57. Top
59. Duration
60. Step
61. Common abdominal operation (Colloq.)
62. Examination
64. Crippled
65. ——fetida, a gum resin
66. Derived from wood (Prefix)
67. Perform paracentesis
68. Female deer
70. Negative
71. Physiotherapy society (Abbr.)
73. Part of Western Hemisphere (Abbr.)
75. Sodium (Symb.)

in skin disorders
a major improvement
in topical corticosteroid therapy

new

Meti-Derm cream 0.5%

with METICORTELONE, original brand of prednisolone

- approximately twice the per milligram potency of topical hydrocortisone
- no edema and sodium retention reported
- provides METICORTELONE in free *alcohol* form, reported by dermatologists to be the most effective form for topical steroid therapy

for effective local relief of allergic (atopic) dermatoses, poison ivy dermatitis and other contact dermatoses, nonspecific anogenital pruritus — *with* new corticosteroid potency.

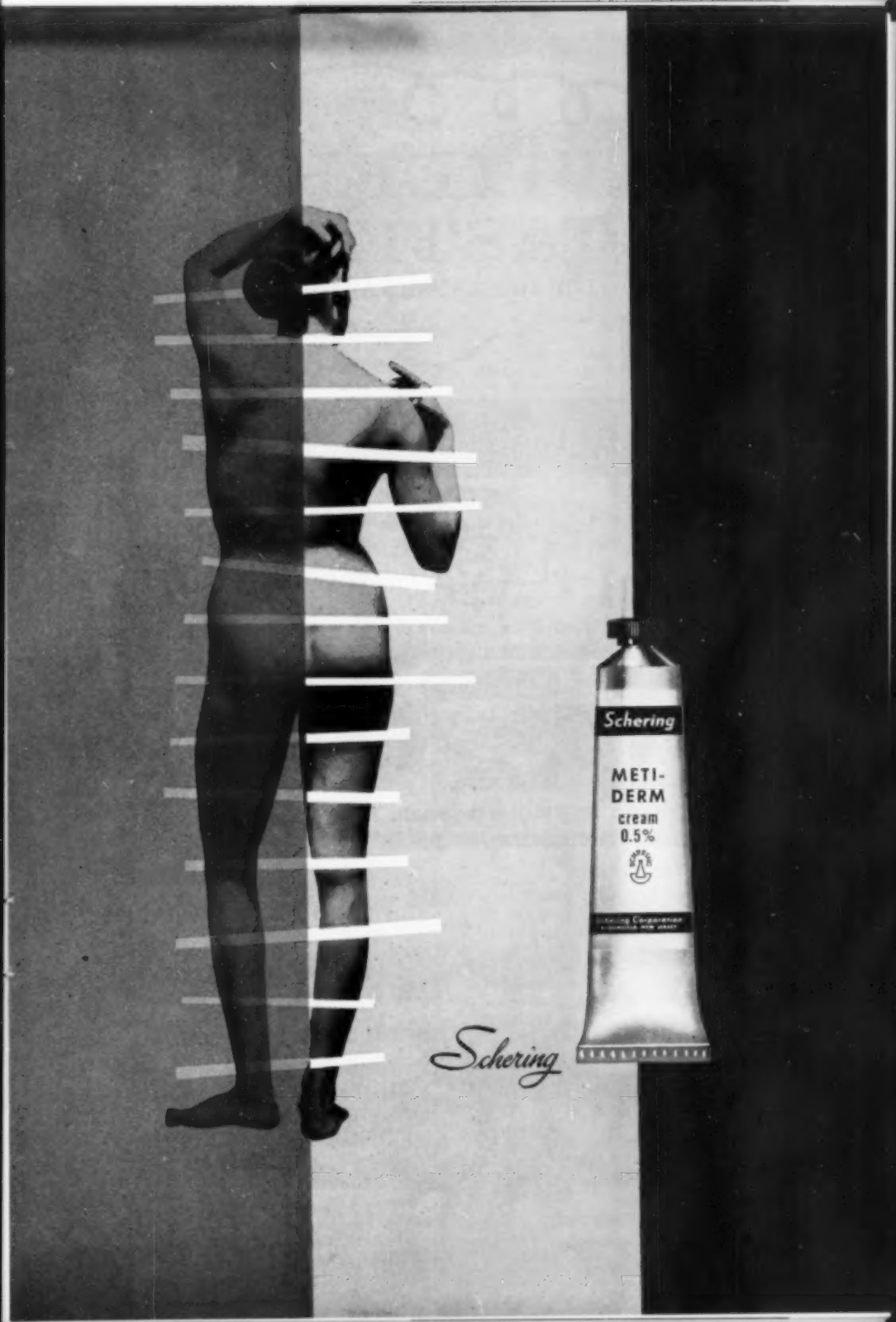
formula: Each gram of water-washable METI-DERM Cream contains 5 mg. of prednisolone, free alcohol.

supplied: METI-DERM Cream, 0.5%, 10 Gm. tubes.

METI-DERM,* brand of prednisolone topical.
METICORTELONE,® brand of prednisolone.

*T. M.

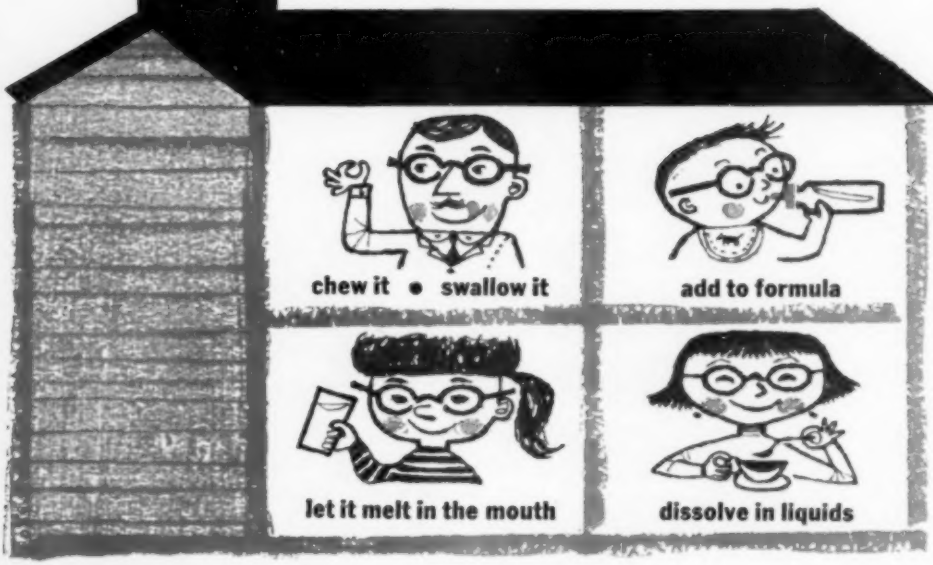
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METI-
DERM
cream
0.5%
Schering

VITERRA® TASTITABS*

the family vitamin *(with minerals)*

NEW



Each VITERRA TASTITAB contains:

Vitamin A	5,000 Units
Vitamin D	1,000 Units
Vitamin B_1 (Thiamine Mononitrate)	1 mg.
Vitamin B_2 (Riboflavin)	2 mg.
Vitamin B_6 (Pyridoxine HCl)	1 mg.
Vitamin B_{12} (Crystalline)	2 mcg.
Vitamin C (from Sodium Ascorbate)	50 mg.
Niacinamide	12 mg.
Calcium Pantothenate	2 mg.
Cobalt (from Cobalt Carbonate)	0.014 mg.
Copper (from Copper Oxide)	0.07 mg.
Iodine (from Potassium Iodide)	0.05 mg.
Iron (from Reduced Iron)	1 mg.
Potassium (from Potassium Iodide)	0.016 mg.
Molybdenum (from Sodium Molybdate)	0.01 mg.
Manganese (from Manganese Carbonate)	0.028 mg.
Magnesium (from Magnesium Oxide)	0.108 mg.
Zinc (from Zinc Oxide)	0.071 mg.

DOSAGE: Usually one TASTITAB daily.

SUPPLIED: Bottles of 100 TASTITABS.

Also available in capsule form.

New cherry-flavored tablet
may be taken five ways.
One bottle
serves the whole family.

ROERIG Rx CHICAGO 11, ILLINOIS

*Trademark

LETTERS TO THE EDITOR

This department is offered as an Open Forum for the discussion of topical medical issues. All letters must be signed. However, to protect the identity of writers, who are invited to comment on controversial subjects, names will be omitted when requested.

Cult Versus Orthodoxy

I read with much sense of humor and chagrin an article in your issue of September, page 947, headed "Cult Versus Orthodoxy."

The humor was caused by the fact that so many MDs are so naive about the osteopathic school; the chagrin because they allow themselves to remain ignorant of the facts; that so many "leaders" in Allopathy mislead their colleagues with intentional lies about osteopathic physicians. If physicians are educated, tolerant, etc., they should avoid ignorance as much as possible because the next step is prejudice.

Dr. M. O. Rouse, of Texas, suggests that DOs go to "medical" schools. To Dr. Rouse let me say this. I wanted to go to a "medical" school. Thanks to Mr. Hitler's influence the concept of "quotas" based on religion was becoming quite effective. I was told by one of the men who endorsed my application to a Philadelphia medical college that mine was the *first* application that was refused by this school (that he endorsed). He is a Protestant. He admitted that the reason was my religion,

—Continued on page 52a

L. A. FORMULA

. . . to normalize

It is important, when inducing normal bowel function, to supply a non-irritating bulk to the colon, especially in those cases in which it has been necessary to eliminate from the diet the high roughage foods containing irritating bulk (lignin and cellulose).

It has been shown[1] that the colon resumes a more normal peristaltic pattern[2] when it is supplied with a stool of medium soft consistency of sufficient bulk[3], especially if the indigestible portion of that bulk consists primarily of hemicellulose[4].

L. A. FORMULA is a vegetable concentrate of naturally occurring hemicelluloses. It is derived from blond psyllium seed by our special Ultra-Pulverization Process and simultaneously dispersed in lactose and dextrose. It provides just the moist, smooth, effective[5] bulk so essential to normal persistalsis.

Furthermore, L. A. FORMULA is undetectable in fruit juice or milk, pleasant tasting in water, and available in 7-ounce and 14-ounce containers at significantly lower cost-to-patient prices. THAT'S WHY WE SAY,

L. A. FORMULA . . . to normalize

1. Dolkart, R. E., Dentler, M., & Barrow, L. L., Illinois M. J., 90:286, 1946
2. Adler, H. F., Atkinson, A. J., & Ivy, A. C., Am. J. Digest. Dis., 8:197, 1941
3. Wozasek, O., & Steigman, F., Am. J. Digest. Dis., 9:423, 1942
4. Williams, R. D. & Olmsted, W. H., Ann. Int. Med., 10:717, 1936
5. Cass, L. J. & Wolf, L. P., Gastroenterology, 20:149, 1952

send for samples for clinical trial to

BURTON, PARSONS & CO.
Washington, D. C.
Originators of fine hydrophilic colloids

the only broad spectrum antibiotic preparation that:

provides the antimicrobial activity of tetracycline

Because it contains Steclin (Squibb Tetracycline), a well tolerated broad spectrum antibiotic, MYSTECLIN is an effective therapeutic agent for many common infections. Most pathogenic bacteria, as well as certain large viruses, certain Rickettsiae, and certain protozoans, are susceptible to Mysteclin.

AND

protects the patient against monilial superinfection

Because it contains Mycostatin (Squibb Nystatin), the first well-tolerated antifungal antibiotic, MYSTECLIN acts to prevent monilial overgrowth which may occur during broad spectrum antibiotic therapy. Manifestations of this overgrowth may include some of the diarrhea and anal pruritus associated with antibiotic therapy, as well as vaginal moniliasis and thrush. On occasion, serious and even fatal infections caused by monilia may occur.

Mysteclin

STECLIN-MYCOSTATIN
(SQUIBB TETRACYCLINE-NYSTATIN)

"MYSTECLIN", "STECLIN" AND "MYCOSTATIN" ARE SQUIBB TRADEMARKS

A PARTIAL LIST OF INDICATIONS FOR MYSTECLIN

When caused by tetracycline-susceptible organisms, the following conditions are among those which may be expected to respond to Mysteclin:

- Abscess
- Bronchiectasis
- Bronchitis
- Bronchopneumonia
- Burns, Infected
- Cellulitis
- Cervicitis
- Chancroid
- Colitis
- Cystitis
- Diarrheas, Infectious
- Diphtheria
- Dysentery, Amebic
- Dysentery, Bacillary
- Empyema
- Endocarditis, Bacterial
- Epididymitis
- Erysipelas
- Furunculosis
- Gangrene
- Gastroenteritis
- Gonorrhea
- Granuloma Inguinale
- Klebsiella Pneumonia
- Laryngitis
- Lymphadenitis
- Lymphangitis
- Lymphogranuloma Venereum
- Mastoiditis
- Meningitis
- Metritis
- Osteomyelitis
- Otitis Media
- Peritonitis
- Pertussis
- Pharyngitis
- Pinworm infestation
- Pneumonia
- Psittacosis
- Pyelonephritis
- Q Fever
- Rocky Mountain Spotted Fever
- Salpingitis
- Scarlet Fever
- Scrub Typhus
- Sepsis, Puerperal
- Septic Sore Throat
- Septicemia
- Sinusitis
- Skin Graft Infections
- Surgical Prophylaxis
- Tonsillitis
- Tracheobronchitis
- Tularemia
- Typhoid Fever
- Typhus
- Urethritis
- Vesiculitis
- Vincent's Infection
- Wounds, Infected
- Yaws

It is impossible to predict with certainty in which patients clinical moniliasis may develop as a result of broad spectrum antibiotic therapy. However, the added protection afforded by Mysteclin against monilial superinfection is especially important in patients who are debilitated, elderly, or diabetic, or when antibiotic therapy must be prescribed in high dosage or for prolonged periods. It is also important in infants (particularly prematures), as well as in patients for whom concomitant cortisone or related steroid therapy is prescribed, or in subjects who have developed a monilial complication on previous broad spectrum therapy.

Mysteclin is particularly useful in women, inasmuch as they not infrequently develop vulvovaginal moniliasis after treatment with ordinary broad spectrum antibiotics; this is especially common in women who are pregnant or diabetic.

Each MYSTECLIN Capsule contains 250 mg. Stecli (Squibb Tetracycline) Hydrochloride and 250,000 units Mycostatin (Squibb Nystatin).
Minimum adult dose: 1 capsule q.i.d.
Supply: Bottles of 16 and 100.
Also available: MYSTECLIN Half Strength Capsules (125 mg. Stecli Hydrochloride and 125,000 units Mycostatin): Bottles of 16 and 100.

SQUIBB



DOSAGE: Two tablets with or just after meals. Dose may be reduced at discretion of physician, usually after first week.

SUPPLIED: In bottles of 84 and 500 tablets. Available on prescription only.

Each CONVERTIN Tablet provides:

A sugar-coated outer layer of:

Betaine Hydrochloride (Provides 5 minims Diluted Hydrochloric Acid U. S. P.)	130.0 mg.
Oleoresin Ginger	1/600 gr.

Surrounding an enteric-coated core of:

Pancreatin (4 x U. S. P.) (Equiv. 250 mg.)	62.5 mg.
Desoxycholic Acid	50.0 mg.

B. F. ASCHER & COMPANY, INC., *Ethical Medicinals*, KANSAS CITY, MISSOURI

It's a date—

...among other things...which distinguishes Vi-Penta Drops 'Roche.' Since all multivitamin solutions tend to lose strength in time, Vi-Penta® Drops are dated to assure full label potency. Just 0.6 cc daily provides required amounts of A, C, D and B vitamins (including B_6), and you'll find that both mothers and youngsters like them because they're easy to give and easy to take.

Hoffmann - La Roche Inc • Nutley 10 • N. J.





For the bug and the bugaboo

Gantrisin (acetyl) Pediatric Suspension
is often the answer to both the infectious organism and the bugaboo of medicine taste.

Gantrisin is a single, soluble, wide-spectrum sulfonamide, well tolerated by all ages. The acetyl form has a fine raspberry flavor -- no medicine taste.

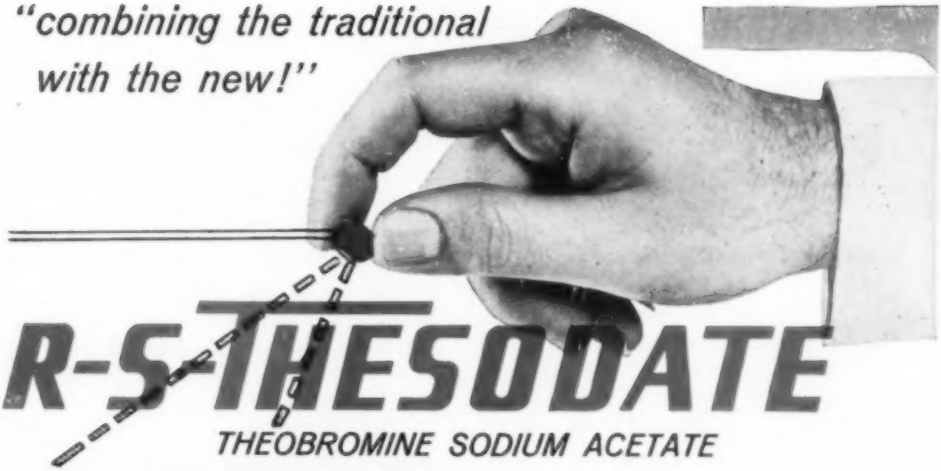
Gantrisin® - brand of sulfisoxazole

Gantrisin® (acetyl) - brand of acetyl sulfisoxazole

ROCHE

original research in medicine and chemistry

"combining the traditional with the new!"



R-S-THESODATE

THEOBROMINE SODIUM ACETATE

plus **RAUWOLFIA serpentina**

FOR ESSENTIAL HYPERTENSION

FOR YEARS *Thesodate*, the original enteric-coated tablet of Theobromine Sodium Acetate, has been used extensively for cardiac and circulatory disorders such as coronary artery disease which is often accompanied by hypertension.

NOW COMBINED with the whole powdered root of Rauwolfia serpentina (no single alkaloid or fraction having shown the beneficial effects of the whole crude root), R-S-THESODATE offers a more ideal treatment for essential hypertension whether or not coronary artery disease is present. In most cases, its use should effect gradual but sustained blood pressure reduction and a lowered pulse rate if it has been elevated.

SYMPTOMS OF HYPERTENSION should also be alleviated by the tranquilizing effect of one of Rauwolfia's alkaloids. A sense of well-being usually occurs within a few days after starting the patient on R-S-THESODATE. Shortly after, the normotensive effect becomes more noticeable, and thus in most cases the patients will enjoy both symptomatic and systemic improvement.

R-S-THESODATE TABLETS, enteric-coated to prevent gastric distress, are taken at meals and at bedtime. The bedtime tablet prepares the patient for early morning activities.

available for

CORONARY ARTERY DISEASE

in following formulas

TABLETS THESODATE
7½ gr. or 3¾ gr.

WITH PHENOBARBITAL
7½ gr. with ½ gr.
7½ gr. with ¼ gr.
3¾ gr. with ¼ gr.

WITH POTASSIUM IODIDE
5 gr. with 2 gr.

WITH POTASSIUM IODIDE AND PHENOBARBITAL
5 gr. with 2 gr. and ¼ gr.

all formulas ENTERIC-COATED

Supplied in 100's and 500's

Each enteric-coated tablet contains:

Theobromine Sodium Acetate (7½ gr.) 0.5 Gm.
Rauwolfia serpentina ..... 50 mg.

Supplied in 100's and 500's

Brewer
EST. 1852

BREWER & COMPANY, INC. WORCESTER 8, MASSACHUSETTS U.S.A.

For samples just send your Rx blank marked 11-RTH-4

LETTERS TO THE EDITOR

—Continued from page 47a

not my grades (he knew my grades). This then is one of the reasons that many of us (not only Jews) sought to become osteopathic physicians. Let me add further; if the "traditional" school of healing had all the answers to health and disease then there would be no reason to found the osteopathic school (incidentally it was founded by an allopath). The concept of health and disease which is the basis of the osteopathic school has become adopted by the allopaths. The use of manipulation is only a small part of our notion concerning this complex problem.

Since your medical schols limited students not only on religion but also in numbers; since the number of physicians did not grow with the population, there was and still is a need for more physicians. Contrary to what many of you may believe, the osteopathic school has supplied some fifteen thousand adequately trained doctors to this country. This is the approximate number in practice today.

I have a license to practice in Pennsylvania and also in New York. To be able to take New York boards and to pass them (first try) is certainly evidence of adequate training for practice as a "duly licensed physician."

Fortunately, there are some men of influence and prestige in the allopathic school who recognize the true picture of the osteopathic physician. They are trying to do their best to better the general situation. As things are now there is anything but democracy in the medical picture. If the AMA is truly interested, it could press for admission of osteopathic physicians to the staff

—Concluded on page 112a



Don't overstimulate the depressed patient . . .



CREATE A HAPPY-MEDIUM *with NEW*

Ritalin®

. . . a mild cortical stimulant which gently lifts the patient out of fatigue and depression without swings of reaction caused by most stimulants. Ritalin counteracts the oversedation of barbiturates, chlorpromazine, rauwolfia, antihistamines . . . yet has no appreciable effect on blood pressure, pulse rate or appetite.

Supplied: Tablets, 5 mg. (yellow), 10 mg. (blue) and 20 mg. (peach-colored).

Dosage: 5 to 20 mg. b.i.d. or t.i.d., adjusted to the individual.

RITALIN® hydrochloride (methyl phenidylacetate hydrochloride CIBA)

2/2201M

CIBA
SUMMIT, N. J.

establishing
desired
eating
patterns



Obedrin®

and the 60-10-70 Basic Plan

In the development of good eating habits, medication is important, not only in initiating control, but also in maintaining normal weight.[1,2,3]

Obedrin contains:

- Methamphetamine for its anorexigenic and mood-lifting effects.
- Pentobarbital as a balancing agent, to guard against excitation.
- Vitamins B_1 and B_2 plus niacin to supplement the diet.
- Ascorbic acid to aid in the mobilization of tissue fluids.

Since Obedrin contains no artificial bulk, the hazards of impaction are avoided. The 60-10-70 Basic Plan provides for a balanced food intake, with sufficient protein and roughage.

Formula

Semoxydrine HCl (Methamphetamine HCl) 5 mg.; Pentobarbital 20 mg.; Ascorbic acid 100 mg.; Thiamine HCl 0.5 mg.; Riboflavin 1 mg.; Niacin 5 mg.

1. Eisfelder, H.W.: Am. Pract. & Dig. Treat., 5:778 (Oct., 1954).
2. Sebrell, W.H., Jr.: J.A.M.A., 152:42 (May, 1953).
3. Sherman, R.J.: Medical Times, 82:107 (Feb., 1954).

Write for 60-10-70 Menu pads, weight charts, and samples of Obedrin.

THE S. E. MASSENGILL COMPANY
BRISTOL, TENNESSEE

All the benefits of prednisone and prednisolone plus positive antacid action to minimize gastric distress



Multiple Compressed Tablets of 'Co-Deltra' and 'Co-Hydeltra' are designed to help the physician cope with the problem of gastric distress which might otherwise become an obstacle to therapy with prednisone and prednisolone. Each Multiple Compressed Tablet is formulated as a "tablet within a tablet" to provide stability and to release in sequence antacid and anti-inflammatory components.

NEW

'Co-Deltra'

Prednisone Buffered

MULTIPLE COMPRESSED TABLETS

and

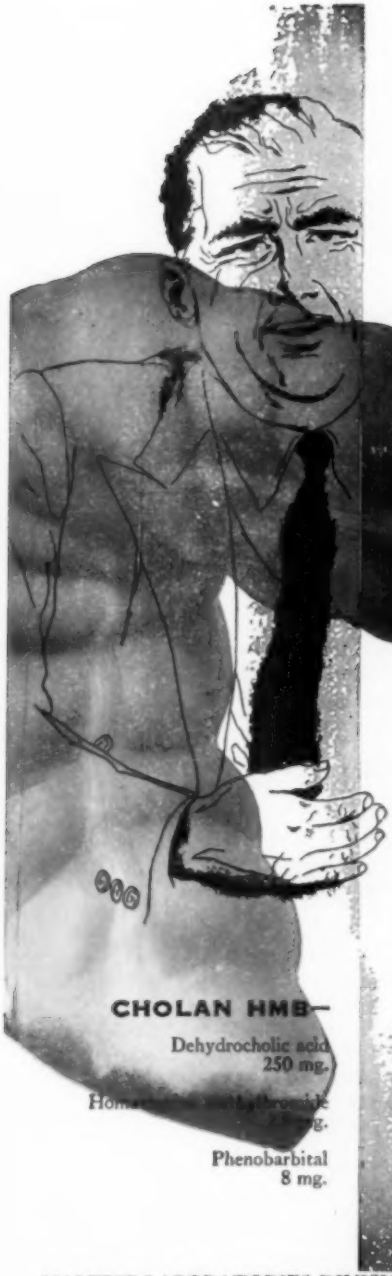
'Co-Hydeltra'

Prednisolone Buffered

SHARP & DOHME

Philadelphia 1, Pa.
DIVISION OF MERCK & CO., INC.

Supplied: Multiple Compressed Tablets of 'Co-Deltra' and 'Co-Hydeltra', each containing 5 mg. prednisone or prednisolone, 300 mg. of dried aluminum hydroxide gel, U.S.P., and 50 mg. of magnesium trisilicate, U.S.P., bottles of 30 tablets. 'Co-Deltra' and 'Co-Hydeltra' are the trademarks of MERCK & CO., INC.



HELP

for the Bowel-conscious Patient

CHOLAN HMB

acts promptly to provide:

1 **Hydrocholeresis –**
abundant fluid bile

2 **Spasmolysis –**
safe and dependable
relaxation of biliary tree

3 **Sedation –**
for the psychosomatics

CHOLAN HMB–

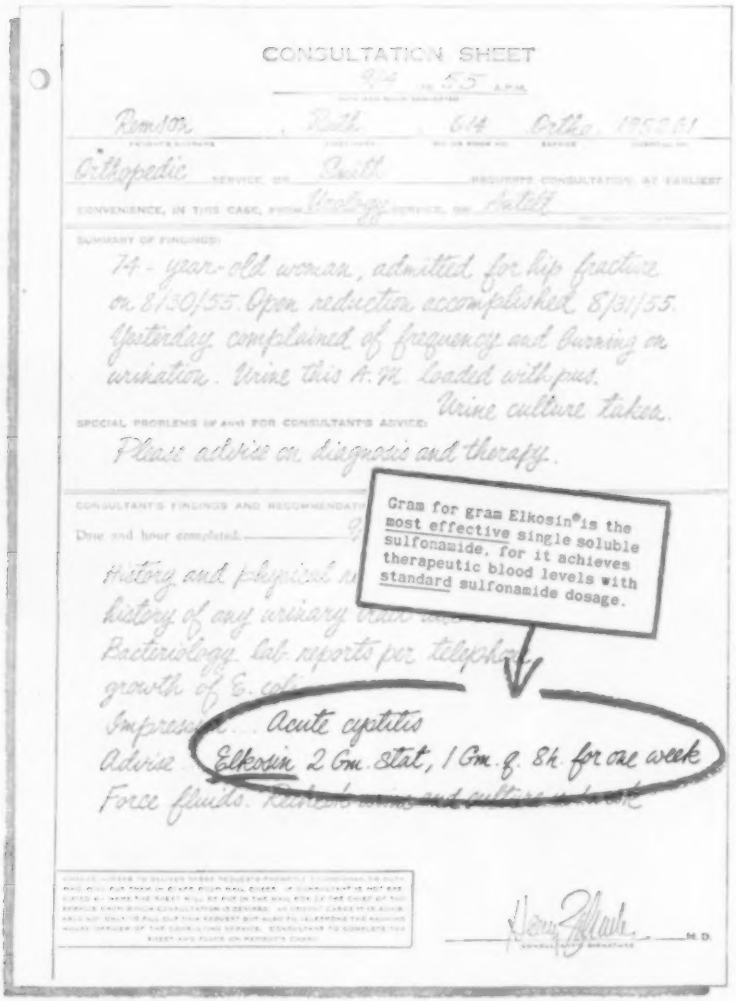
Dehydrocholic acid
250 mg.

Homatropine methylbromide
2.5 mg.

Phenobarbital
8 mg.

Maltbie

MALTBIE LABORATORIES DIVISION • Wallace & Tiernan Inc. • Belleville 9, N. J.



ELKOSIN® (sulfisomidine CIBA)

CIBA *Summit, N. J.*

MODERN MEDICINALS

These brief resumes of essential information on the newer medicinals, which are not yet listed in the various reference books, can be pasted on file cards and a record kept. This file can be kept by the physician for ready reference.

Achrocidin, Lederle Laboratories, Division of American Cyanamid Company, Pearl River, New York. Each tablet contains Achromycin tetracycline HCl 125 mg., phenacetin 120 mg., caffeine 30 mg., salicylamide 150 mg., chlorothen citrate 25 mg. Achrocidin controls most bacterial invasions and relieves such symptoms of the common cold as headache, muscular aches and pains, fever, nasal discharge, excessive mucus and chest congestion. **Dose:** Recommended dosage is 2 tablets with a full glass of water or a bland drink at the onset of symptoms, followed by 2 tablets 3 to 4 times daily for 3 to 5 days. In addition, the usual measures such as bed rest, increased fluid intake and precautions against exposure to cold and inclement weather should be followed. **Sup:** In bottles of 24.

Aqua-B with Ascorbic Acid, The Upjohn Company, Kalamazoo, Michigan. A nutritional supplement in sterile solution. Each cc. contains thiamine hydrochloride 12.5 mg., riboflavin 3 mg., pyridoxine hydrochloride 1.5 mg., d-pantothenyl alcohol 15 mg., nicotinamide 50 mg., ascorbic acid 75 mg. **Dose:** Intravenous or intramuscular, 1 to 2 cc. on alternate days, or more frequently depending upon individual requirements. **Sup:** In 10 cc. vials.

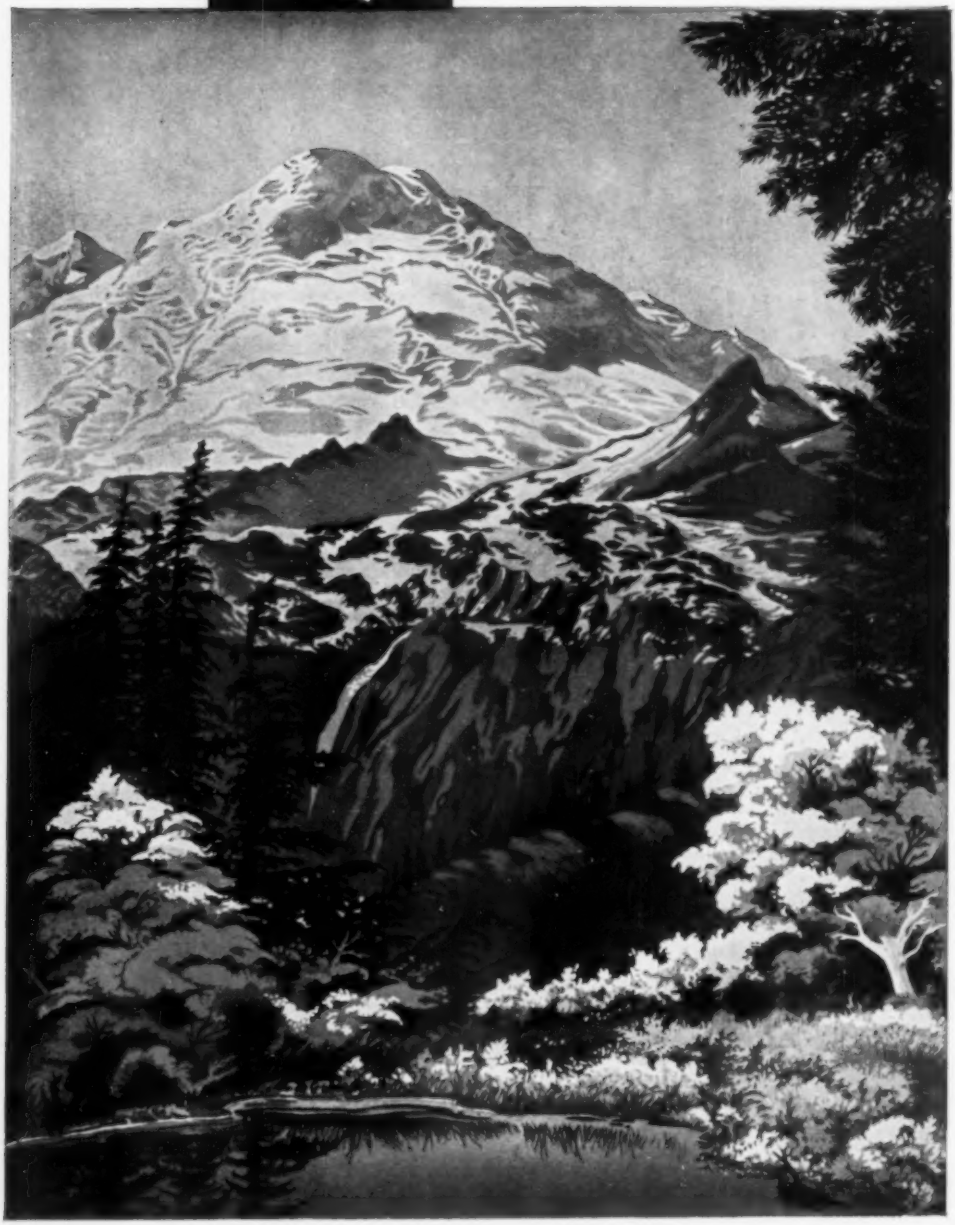
Clinistix, Ames Company, Inc., Elkhart, Indiana. A specific test for urine glucose performed merely by dipping a strip of test paper in a urine specimen. A color reaction takes place when glucose is present. **Dose:** As indicated by physician. **Sup:** In packets of 30 strips each.

Dovial Tablets, Winthrop Laboratories, New York 18, New York. A new anti-obesity drug containing meberal 30 Mgm., desyphed. Hcl. (methamphetamine Hcl.) 2.5 Mgm., thyractin (thyroid concentrate) 10 Mgm. **Dose:** As determined by physician. **Sup:** In bottles of 100 tablets.

—Continued on page 60a



a holiday



from fatigue

Betasyamine® . . . for a holiday from fatigue . . . in your "well" patients who feel sick.

Your tired patients: Betasyamine has been included in the recovery and rehabilitation programs of many common conditions characterized by chronic fatigue, impaired neuromuscular function, and anxiety tension states. It has been clinically established[1, 2, 3, 4] to be of distinct benefit in relieving exhaustion, re-establishing muscle tone, creating a new mood of optimism. Low energy states have been linked with subnormal muscle and nerve phosphocreatine readings.[1] Betasyamine, containing betaine and glycocyamine, precursors of phosphocreatine, steps up these values to normal, thus tending to restore and maintain the dynamic energy balance.

Containing no unphysiologic sedative or stimulant drug, Betasyamine is true replacement therapy; it offers promise of—a holiday from fatigue—wherever increased burdens and stresses have undermined the energy reserve.

Average Dosage: 1 Effervescent Packet; 1 tablespoonful Emulsion; or 5 Tablets three times daily at mealtimes.

Supplied: Effervescent Packets (new) — 24's; Emulsion 16 fl. oz.; Tablets — 200's.

References: 1. Dixon, H. H., and others: West. J. Surg. *62*:338 (June) 1954. • 2. Jones, C. H.: (in press). • 3. Watkins, A. L.: New England J. Med. *248*:621 (April 9) 1953. • 4. Aldes, J. H.: Bull. Biol. Sciences Foundation *1*:4 (April) 1954.

Amino Products Division
International Minerals & Chemical Corp. • Chicago • San Francisco • Los Angeles

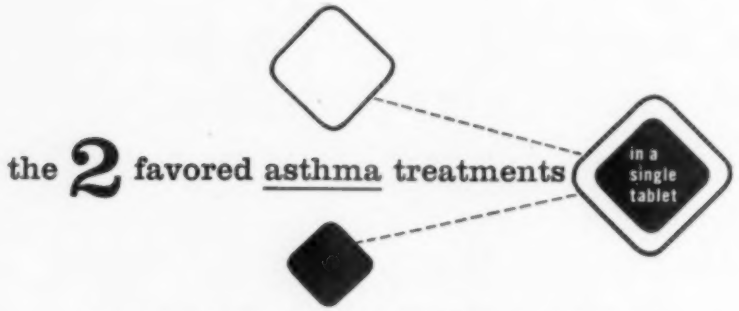
—Continued from page 57a

Gelusil-Lac, Warner-Chilcott Laboratories, New York 11, New York. A new antacid absorbent, extremely palatable and taken like a glass of milk. One heaping teaspoonful into one-half glass of cold water contains the equivalent of 4 Gelusil tablets. Used for the relief of gastric hyperacidity and other types of digestive illnesses. **Dose:** As determined by physician. **Sup:** In 320 Grams (20 doses).

Glu-Salgin Capsules, The Warren Teed Products Company, Columbus 8, Ohio. Each capsule contains glucuronolactone 2½ grs., dipyrone 1½ grs., and Salrin (brand of salicylamide) 5 grs. An antirheumatic agent supplying glucuronic acid, a basic element of all connective tissues, for tissue rehabilitation and a direct attack on the arthritic process and fortified with the analgesics, dipyrone and Salrin, for quick patient comfort in the treatment of arthritis, bursitis, backache, gouty arthritis, sciatica, neuritis, and neutalgia. **Dose:** Initial dosage—2 capsules four times daily, after meals and at bedtime; Maintenance dosages—after comfort is established, dosage may be reduced to 2 capsules swice daily. **Sup:** In bottles of 100 and 500.

Medihaler-Epi, Riker Laboratories, Inc., Los Angeles, California. A 0.5% solution of epinephrine U.S.P. containing 0.1% ascorbic acid as a preservative in an inert propellent. Alcohol 33%. For oral inhalation with

—Continued on page 64a



First, hold tablet under the tongue 5 minutes for fast sublingual action of aludrine (Isopropyl arterenol).

Then, swallow tablet for 4-hour protection with theophylline-ephedrine-phenobarbital.

Your asthma patients will prefer convenient NEPHENALIN. One tablet as needed (up to 5 a day). Bottles of 20 and 100.
THOS. LEEMING & CO., INC., New York 17, N.Y.

Nephenalin® *(for adults)*

Nephenalin® **PEDIATRIC**



safe and sure laxation

Agoral relieves constipation gently, without strain. A dose at bedtime almost always produces results the next morning. Patients can follow their normal daily routine because Agoral does not provoke the sudden urge induced by strong laxatives.

Excellent for postoperative patients who should avoid undue strain but who should resume as soon as possible their normal routine. Agoral is also well suited to all other cases of acute or chronic constipation, where straining or purges are to be avoided: in bedridden patients, during and after pregnancy, in older people and in children.

Agoral mixes readily and uniformly with the intestinal contents during its passage through the tract. It aids in the retention of fluid in the fecal column, affords lubrication and provides mild peristaltic stimulation. Agoral causes no sudden, uncomfortable griping, distention or stomach distress. Used for prompt relief, it is not habit forming and may be prescribed for protracted periods.

Dosage: On retiring, ½ to 1 tablespoonful. Repeat if needed the following morning, two hours after eating. Contraindications: symptoms of appendicitis; idiosyncrasy to phenolphthalein.

Supplied: Bottles of 6, 10 and 16 fl. oz.; and as Agoral Plain (without phenolphthalein), bottles of 6 and 16 fl. oz.

Agoral® *the laxative to meet all needs*

mineral oil emulsion with phenolphthalein

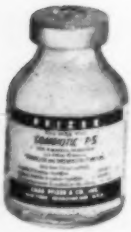
WARNER-CHILCOTT

just one vial... just one injection

for combined penicillin-dihydrostreptomycin therapy...

When the combination of penicillin and dihydrostreptomycin is indicated, Combiotic affords advantages in time-saving convenience and economy. Further advantages:

- high and promptly effective blood levels
- synergistic action, rapid bactericidal effect
- extended antibacterial range, better control of mixed infections
- drug resistance minimized
- fewer injections required



COMBIOTIC®

PENICILLIN-DIHYDROSTREPTOMYCIN COMBINATION



P-S (Dry Powder)

1.0 Gm. Formula: 300,000 units penicillin G procaine crystalline, 100,000 units penicillin G potassium crystalline and 1.0 Gm. dihydrostreptomycin—single-dose and 5-dose vials. *0.5 Gm. Formula:* Same as above but with 0.5 Gm. dihydrostreptomycin—single-dose and 5-dose vials.

Aqueous Suspension

In Steraject® Single-dose Disposable Cartridges: 400,000 units penicillin G procaine crystalline and 0.5 Gm. dihydrostreptomycin. Now, in *new* one piece cartridge-sterile needle assembly. (Also in 5-dose vials.)

Pfizer Pfizer Laboratories, *Division, Chas. Pfizer & Co., Inc.*, Brooklyn 6, N. Y.



Bed-time snacks did away with Gertie.
She looked forty-five, yet was barely thirty.
Her ravenous appetite could have been quelled
If she had been properly Obocell-ed.

SHORTEN HER WAISTLINE . . . LENGTHEN HER LIFELINE

doubles the power to resist food

Obocell®

Each Obocell tablet contains:
d-Amphetamine Phosphate (diabasic) . . . . . 5 mg.
Nicel* . . . . . 160 mg.
*Irwin-Neisler's brand of high viscosity methylcellulose.

Bottles of 100, 500 and 1000.

To serve your patients today — Call your pharmacist for any additional product information you may need to help you prescribe Obocell.

IRWIN, NEISLER & COMPANY • Decatur, Illinois

—Continued from page 60a

Medihaler Adapter for temporary relief of the spasms and wheezing of bronchial asthma. **Dose:** 1 or 2 inhalations as may be necessary for relief. **Sup:** In 10 cc. vials.

Medihaler-Iso, Riker Laboratories, Inc., Los Angeles, California. A 0.25% solution of isoproterenol U.S.P. and 0.1% ascorbic acid as a preservative in an inert propellent. Alcohol 33%. For oral inhalation with Medihaler Adapter for temporary relief of the spasms and wheezing of bronchial asthma. **Dose:** 1 or 2 inhalations as may be necessary for relief. **Sup:** In 10 cc. vials.

Meti-Derm Cream, 0.5%, Shering Corporation, Bloomfield, New Jersey. Free alcohol of prednisolone for topical application. Each Gm. contains 5 mg. of prednisolone. Used for allergic dermatoses and itching. **Dose:** Apply 3 to 4 times daily. **Sup:** In 10 Gm. tubes—boxes of 1 and 6.

Novahistine w/Penicillin, Pitman-Moore Company, Indianapolis 6, Indiana. For treatment of respiratory congestion complicated with infection by penicillin-susceptible bacteria. Each capsule contains: phenylephrine HCl 10 mg., prophenpyridamine maleate 12.5 mg., penicillin G potassium 200,000 units. **Dose:** 2 capsules 3 or 4 times daily. **Sup:** In bottles of 24 capsules.

Pen-Vee Suspension, Wyeth Laboratories, Philadelphia , Pennsylvania.

—Concluded on page 68a

TRANQUILITY *Plus* MOOD ELEVATION

For All Tense and Anxious Office Patients

- *MENTAL*
- *MUSCULAR*
- *GASTRO-INTESTINAL*

RELAXAMINE®

Relaxation without Drowsiness, Depression or Lethargy

Little or No Side Effects

Even with Extended Use

DOSE: 1 or 2 tablets after each meal.

SUPPLIED: Bottles of 50 and 500 tablets containing Mephenesin 400 mg., Dextro Amphetamine Sulph. 1.5 mg., Phenobarbital 1/6 gr., Homatropine Methyl Bromide 1.5 mg.

Write for clinical supply to

THE ADAMS CO., PHILA. 10, PA.



Sustained androgen therapy

for even
the busiest patient

METANDREN® LINGUETS®

This is your prescription in *action*. With Metandren Linguets your patient obtains benefits of androgen therapy even while traveling on a crowded bus. For in potency, immediacy and duration, Linguets are comparable to parenteral androgens. Absorbed buccally or sublingually, androgen begins to enter the blood stream in seconds, and is *continuously* released as the Linguet dissolves. Your patients do appreciate this pleasant, convenient form of hormone administration.

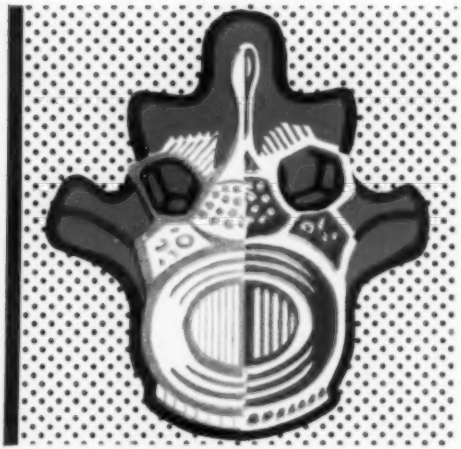
METANDREN® (methyltestosterone U.S.P.CIBA) LINGUETS® (tablets for mucosal absorptionCIBA) 5.0 mg. (white, scored) and 10 mg. (yellow, scored).

CIBA

SUMMIT, N.J.

6/Pss1M

in arthritis
and
allied disorders...



nonhormonal anti-arthritic

BUTAZOLIDIN®

(brand of phenylbutazone)

relieves pain • improves function • resolves inflammation

Employing the serum protein-polysaccharide ratio (PR) as an objective criterion of rheumatoid activity, it has again been shown that BUTAZOLIDIN "...produces more than a simple analgesic effect in rheumatoid arthritis."[1]

Clinically, the potency of BUTAZOLIDIN is reflected in the finding that 57.6 per cent of patients with rheumatoid arthritis respond to the extent of "remission" or "major improvement."[2]

Long-term study has now shown that the failure rate with BUTAZOLIDIN in rheumatoid arthritis, and particularly in rheumatoid spondylitis, is significantly lower than with hormonal therapy.[3]

(1) Payne, R. W.; Shetlar, M. R.; Farr, C. H.; Hellbaum, A. A., and Ishmael, W. K.: J. Lab. & Clin. Med. 45:331, 1955. (2) Bunim, J. J.; Williams, R. R., and Black, R. L.: J. Chron. Dis. 1:168, 1955. (3) Holbrook, W. P.: M. Clin. North America 39:405, 1955.

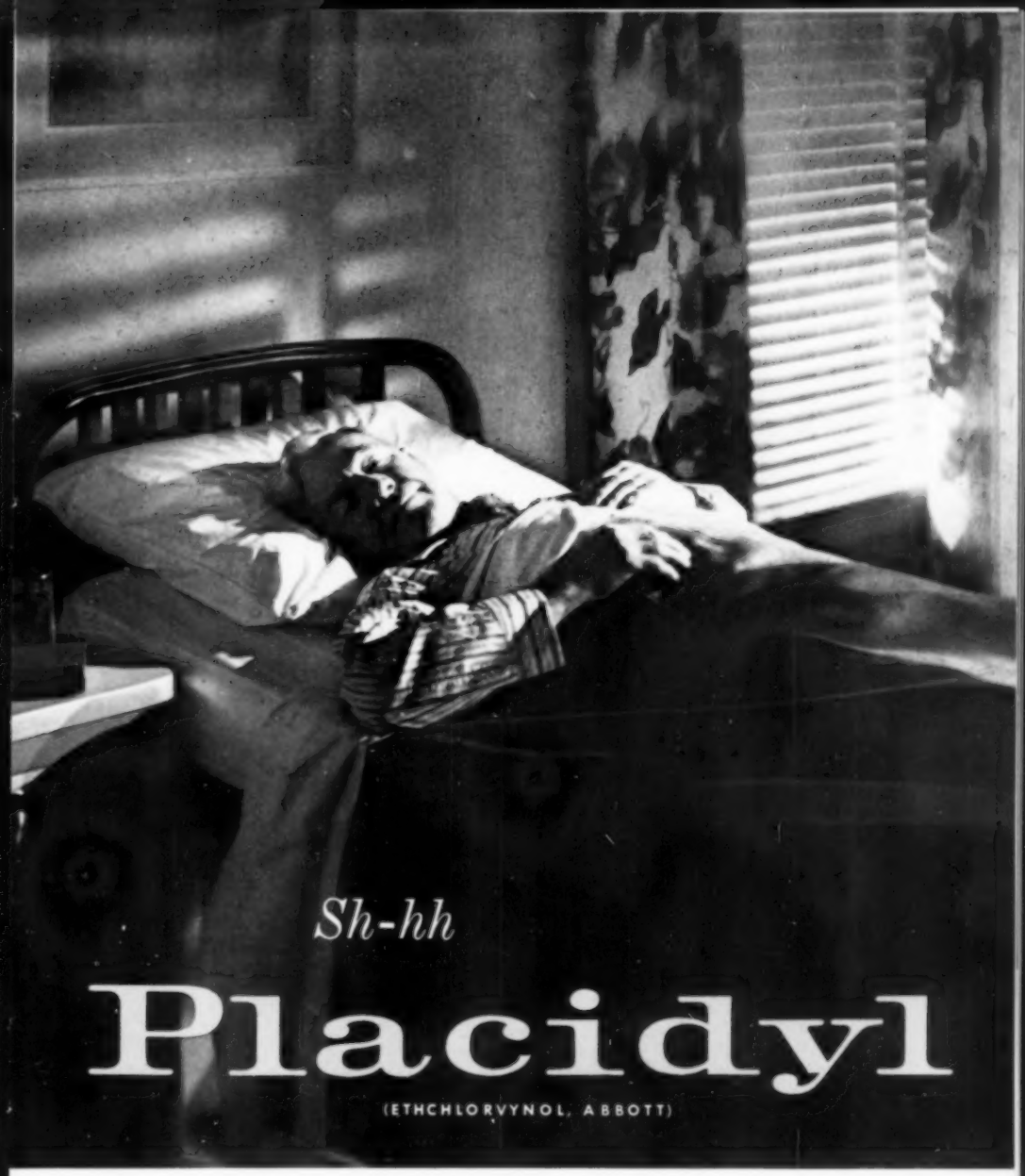
BUTAZOLIDIN® (brand of phenylbutazone). Red coated tablets of 100 mg.

BUTAZOLIDIN being a potent therapeutic agent, physicians unfamiliar with its use are urged to send for literature before instituting therapy.

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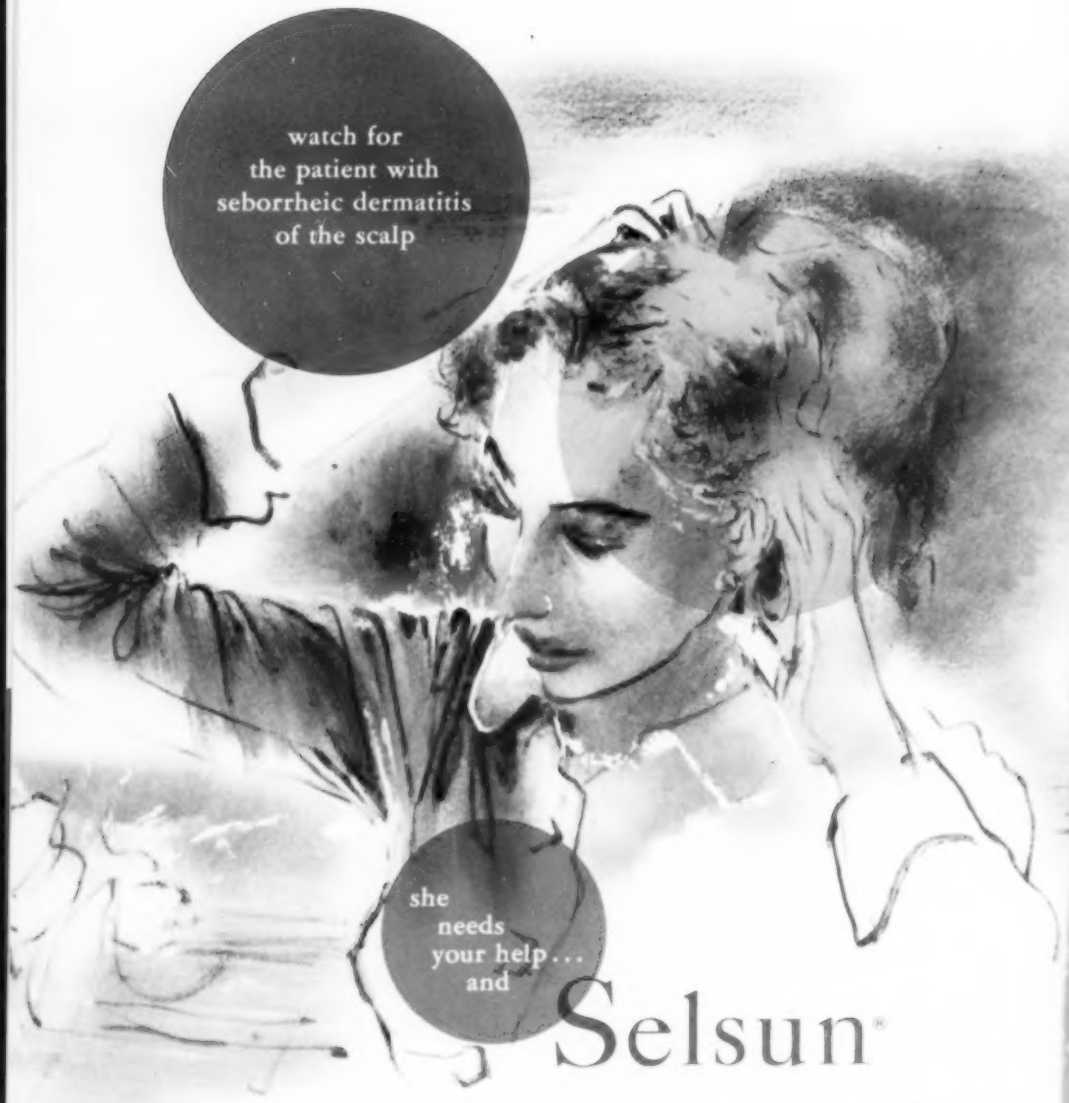
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Placidyl

(ETHCHLORVYNOL, ABBOTT)

nudges your patient to sleep

Gentle as a lullaby, this new nonbarbiturate hypnotic brings tranquil sleep, and is useful even for those patients with liver or kidney disease. 500 mg. capsules, bottles of 100. Abbott



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She may never think of asking you for advice, doctor . . . but she'll thank you when you tell her about SELSUN. *Your prescription for* SELSUN (and SELSUN is sold only on prescription) *will give her lasting relief from the symptoms of seborrheic dermatitis of the scalp or dandruff . . . quickly, easily, economically. Simple and pleasant to use,* SELSUN *is applied and rinsed out while washing the hair, takes little time. Completely controls 81-87% of seborrheic dermatitis, 92-95% of dandruff cases. In 4-fluidounce bottles with directions.* Abbott

® Selenium Sulfide, Abbott

"Functional vomiting
should be carefully distinguished from organic vomiting. Grave consequences may follow if evidences of organic derangement . . . are masked by treatment designed to control vomiting alone."[1]

SAFE

Safety First | in emesis therapy

Prescribe

EMETROL®

(Phosphorated Carbohydrate Solution) *First*

SAFE

EMETROL will not suppress symptoms arising from organic etiology. It controls vomiting of functional origin quickly.

Dosage: Adults, 1 or 2 tablespoonfuls; infants and children, 1 or 2 teaspoonfuls, as often as every 15 minutes. Always administer *undiluted*, and forbid oral fluids for at least 15 minutes after each dose. Even if first dose is not retained, continue administration. If vomiting is not controlled within one or two hours, look for organic etiology. For individual dosage regimens in various indications, please send for literature.

1. Bradley, J. E.: Mod. Med. 20:71, No. 20, 1952.

SAFE

Kinney **KINNEY & COMPANY, INC.** Columbus, Indiana

—Concluded from page 64a

Contains 300,000 units (100 mg.) of benzathine penicillin V per 5 cc teaspoonful in an oral suspension. **Dose:** As determined by physician. **Sup:** 2 fl. oz. bottles.

Pincets, Walker Laboratories, Inc., Mount Vernon, New York. Each Pincet contains the equivalent of 250 mg. piperazine hexahydrate (as piperazine phosphate). For treatment of pinworms and roundworms. **Dose:** For Pinworms the dose for children is based on body weight as follows: Up to 30 lbs., 1 Pincet twice daily; up to 60 lbs., 2 Pincets twice daily. Over 60 lbs., 4 Pincets twice daily and Adults, 4 Pincets twice daily. For roundworms the daily dose is the same. **Sup:** In bottles of 50.

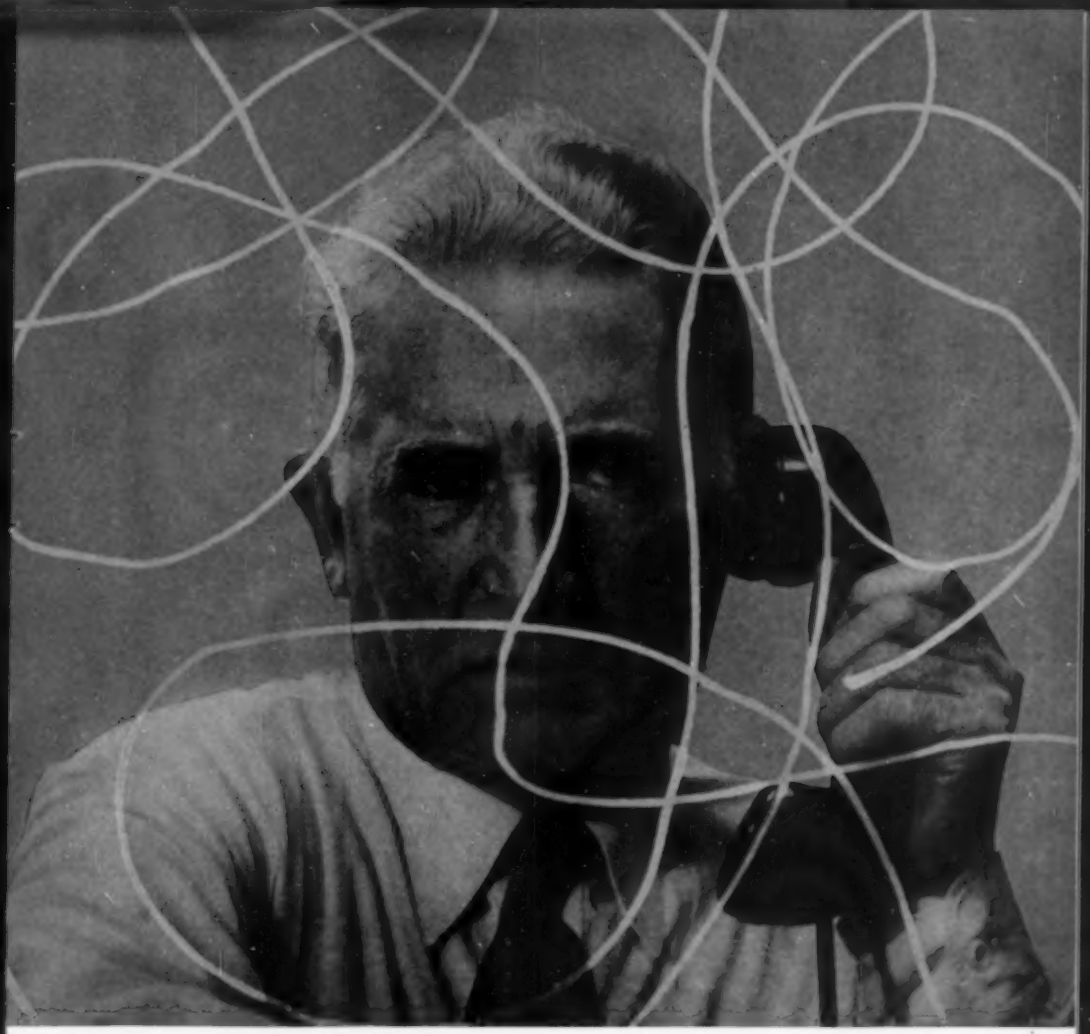
Piperazate Wafers, Thomas Leeming & Company, Inc., New York, New York. A new anthelmintic containing 500 mg. of piperazine phosphate which ensures cure rates second to none in the anthelmintic field. In pinworm (enterobiasis) a cure rate of 90% is obtained in only one week of treatment — in roundworm (ascariasis) a cure rate of 85% is obtained in just one single dose. **Dose:** As determined by physician. **Sup:** In boxes containing 28 wafers.

Rectal Desitin Ointment, Desitin Chemical Company, Providence 2, Rhode Island. A completely new preparation especially formulated for the relief of certain anorectal conditions, and not to be confused with regular Desitin Ointment. It contains high grade Norwegian cod liver oil, zinc oxide, lanolin, talcum, sodium lauryl sulfate, petrolatum q. s. **Dose:** Apply twice a day or more often if necessary. For simple internal hemorrhoids, irritation or inflammation, pile pipe accompanies ointment. **Sup:** In 1½ ounce tube with safe, flexible applicator.

Respilette, Alan Wende Company, Inc., Mineola, New York. A new non-antihistaminic nasal decongestant tablet. Contains pharmacologically balanced formula of atropine sulfate 1/300 gr., ephedrine sulfate ⅛ gr., salicylamide 2 gr., sodium pentobarbital 1/6 gr. Is said to offer definite predictable relief of rhinorrhea and related symptoms as found in allergic and vasomotor rhinitis, hay fever, and coryza due to common cold. Especially noticeable is absence of side effects. **Dose:** 1 tablet initially to be repeated once or twice 1 hour apart, until relief is obtained. Thereafter, 1 tablet p. r. n. **Sup:** In bottles of 100 and 1000 tablets.

Vi-Cuta Skin Cream, Columbus Pharmacal Co., Columbus 16, Ohio. Dermatologic cream. Formula: pantothenyl alcohol 1%, pyridizine HCl 0.5%, hexachlorophene 0.5%, menthol 0.2%; greaseless, water-miscible, hypoallergenic base buffered to normal skin pH 4.5. For antipruritic, antibacterial healing action in common skin disorders including overtreatment dermatitis. **Dose:** As determined by physician. **Sup:** In one ounce tubes.

Viterra Tastitabs, J. B. Roerig Company, Division of Chas. Pfizer & Company, Inc., Chicago, Illinois. Fruit-flavored, soluble tablets containing Vitamins A, D, C, B-1, B-2, pyridozine, niacinamide, calcium pantothenate, B_{12}, iron, cobalt, copper, iodine, potassium, molybdenum, manganese, magnesium and zinc. For nutritional supplementation of the diet for infants, children, adults, and elderly persons. **Dose:** As determined by physician. **Sup:** In bottles of 100 Tastitabs.



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(Butisol and Reserpine)

"Just the right amounts" of two valuable, complementary drugs—Butisol® Sodium 15 mg. and Reserpine 0.1 mg.—to quickly relax tension and hold the patient on a smooth course, without disturbing side-effects.

BUTISERPINE—in cardiovascular-nervous conditions

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ACHROMYCIN*

Tetracycline *Lederle*

In the treatment of

respiratory infections

January and his associates[1] have written on the use of tetracycline (ACHROMYCIN) to treat 118 patients having various infections, most of them respiratory, including acute pharyngitis and tonsillitis, otitis media, sinusitis, acute and chronic bronchitis, asthmatic bronchitis, bronchiectasis, bronchial pneumonia, and lobar pneumonia. Response was judged good or satisfactory in more than 84% of the total cases.

Each month there are more and more reports like this in the literature, documenting the great worth and versatility of ACHROMYCIN. This antibiotic is unsurpassed in range of effectiveness. It provides rapid penetration, prompt control. Side effects, if any, are usually negligible.

No matter what your field or specialty, ACHROMYCIN can be of service to you. For your convenience and the patient's comfort, Lederle offers a *full* line of dosage forms, including

ACHROMYCIN SF

ACHROMYCIN with STRESS FORMULA VITAMINS. Attacks the infection—defends the patient—hastens normal recovery. For severe or prolonged illness. Stress formula as suggested by the National Research Council. Offered in Capsules of 250 mg. and in an Oral Suspension, 125 mg. per 5 cc. teaspoonful.



For more rapid and complete absorption. Offered only by Lederle!

[1]January, H. L. et al: Clinical experience with tetracycline. *Antibiotics Annual* 1954-55, p. 625.

Lederle

LEDERLE LABORATORIES DIVISION
AMERICAN CYANAMID COMPANY
PEARL RIVER, NEW YORK

REG. U.S. PAT. OFF.

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Restoring the Patient to his NORMAL REGULARITY

PERHAPS no other subject in the field of medicine is beset with more varying opinions as to treatment than is the subject of constipation. Many theories held about therapy lose sight of the fact that in constipation the bulk is there; its evacuation and restoration of the colon to its usual functioning efficiency are the therapeutic aim.

Evidence is accumulating that phenolphthalein is the laxative of choice in such conditions. Sir Adolphe Abrahams[1] believes that in chronic constipation, for the relief of which the physician is most likely to be consulted, "there are definite indications" for the employment of mild laxatives, to which he applies the term "aperients." Such laxatives "will be required while the process of re-education is proceeding or to supplement muscular inadequacy of the gut that often follows serious illness. They will be required in intractable and senile conditions in which re-education is impossible or to ensure a soft stool to avoid pain, as that of anal fissure or inflamed piles. They will also be required when coma threatens in a diabetic and as a precaution against straining at stool in subjects of myocardial or arterial disease. They will generally be required almost as a routine during pregnancy and the puerperium."

The author finds that "phenolphthalein has much to recommend it" for the treatment of constipation. "It is tasteless, it forms a soluble salt in the intestines, and stimulates peristalsis in the colon without producing griping. It is slowly excreted so that a single dose often has its action prolonged over three or four days and its efficacy does not appear to be diminished by continued use."

In their study of the action of phenolphthalein in children, Ditkowsky and Steigmann[2] conclude that "phenolphthalein in constipated children produced a tendency toward a normal number of stools daily. Non-constipated children did not become constipated after the prolonged use of phenolphthalein. There is reason to believe that phenolphthalein exerts a 'tonic' influence and does not produce dependence on its use."

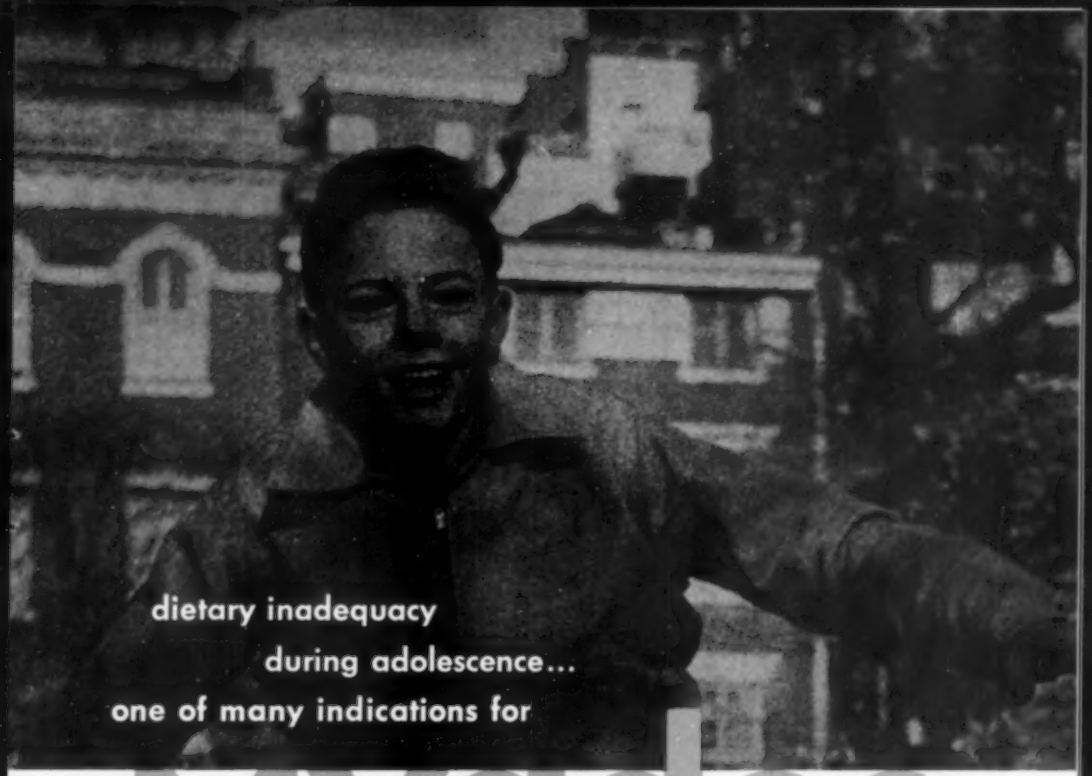
The phenolphthalein used in Ex-Lax is biologically standardized for constant uniform efficiency. Being incorporated in a chocolated base, Ex-Lax affords palatable medication. This is an important advantage when pleasing taste requires special consideration, as during pregnancy and in administration to children. The superiority of Ex-Lax as an all-around laxative, suitable for all ages, has made it the choice of an ever increasing number of physicians for use in their practice.

A trial supply of Ex-Lax, and a Physician's Pocket Notebook, bound in leather, and making medical reference information readily available, will be gladly sent to physicians.

Ex-Lax, Inc., Brooklyn 17, New York

1. A. Abrahams: The Practitioner, London, 170:266, March, 1953.

2. S. Ditkowsky and F. Steigmann: J. Pediat. 45:169, August, 1954.



Myadec®

high potency vitamin-mineral formula

"Physicians, dentists, and research workers report a high percentage of unfavorable physical conditions closely related to dietary inadequacy....The 13 to 15 age level showed the greatest deviations from good nutritional status and dietary adequacy."*

MYADEC furnishes, in a single capsule, therapeutic potencies of nine important vitamins and is supplemented by eleven essential minerals and trace elements for normal metabolic function.



Each MYADEC Capsule provides:

vitamins:	
Vitamin B_{12} Crystalline	5 mcg.
Vitamin B_2 (Riboflavin)	10 mg.
Vitamin B_6 (Pyridoxine Hydrochloride)	2 mg.
Vitamin B_1 Mononitrate	10 mg.
Nicotinamide (Niacinamide)	100 mg.
Vitamin C (Ascorbic Acid)	150 mg.
Vitamin A	25,000 units
Vitamin D	1,000 units
Vitamin E	5 I.U.

minerals:	
Iodine	0.15 mg.
Manganese	1.0 mg.
Cobalt	0.1 mg.
Potassium	5.0 mg.
Molybdenum	0.2 mg.
Iron	15.0 mg.
Copper	1.0 mg.
Zinc	1.5 mg.
Magnesium	6.0 mg.
Calcium	105.0 mg.
Phosphorus	80.0 mg.

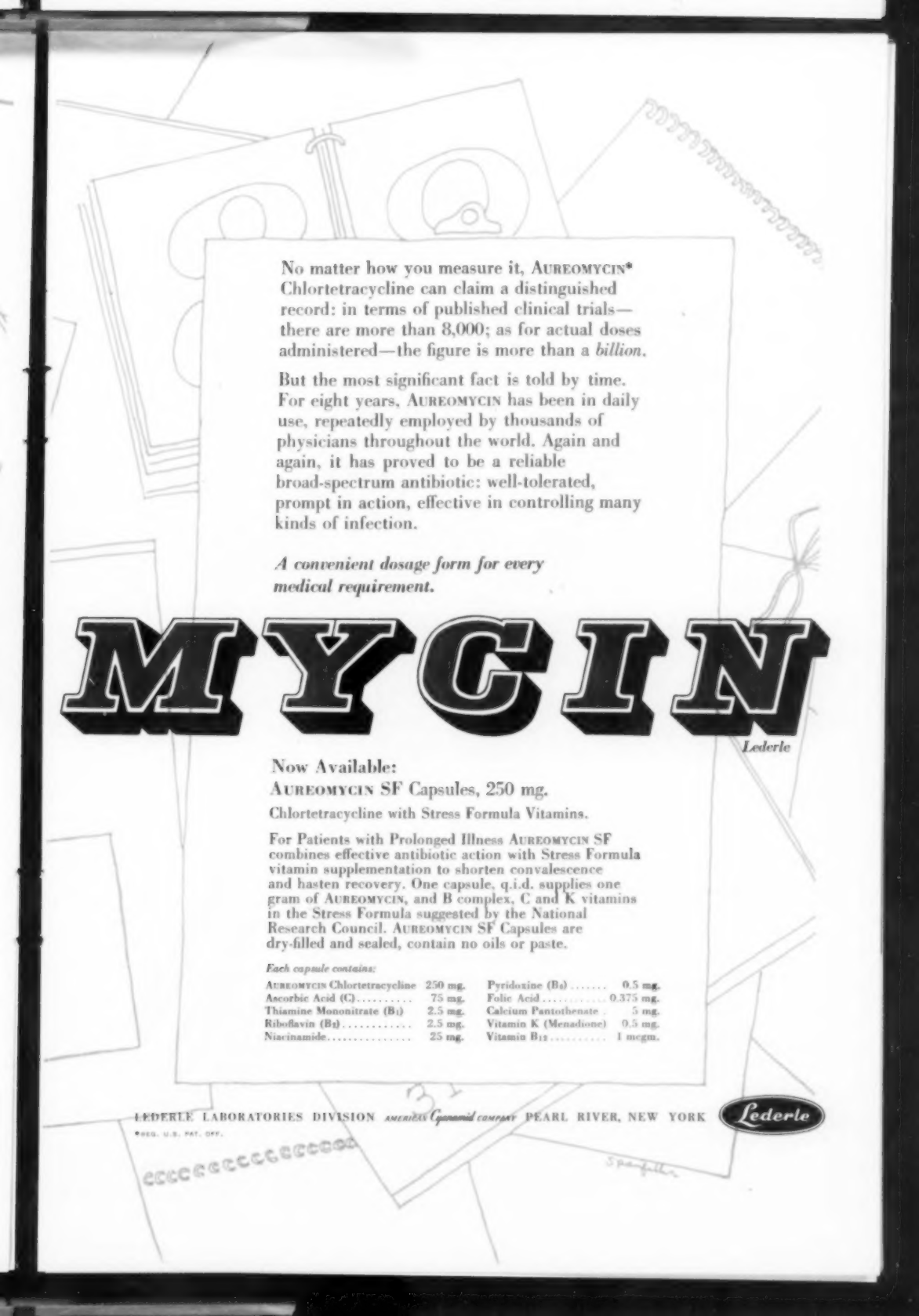
(The minerals are supplied as inorganic salts.)

MYADEC Capsules are supplied in bottles of 30, 100, 250, and 1,000.

*de Planter Bowes, A.: Nutrition of Children During Their School Years, *Am. J. Clin. Nutrition* 3:254, 1955.

PARKE, DAVIS & COMPANY DETROIT, MICHIGAN


eight
years
great
AUREO



No matter how you measure it, AUREOMYCIN* Chlortetracycline can claim a distinguished record: in terms of published clinical trials—there are more than 8,000; as for actual doses administered—the figure is more than a *billion*.

But the most significant fact is told by time. For eight years, AUREOMYCIN has been in daily use, repeatedly employed by thousands of physicians throughout the world. Again and again, it has proved to be a reliable broad-spectrum antibiotic: well-tolerated, prompt in action, effective in controlling many kinds of infection.

A convenient dosage form for every medical requirement.

MYCIN

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Now Available:

AUREOMYCIN SF Capsules, 250 mg.

Chlortetracycline with Stress Formula Vitamins.

For Patients with Prolonged Illness AUREOMYCIN SF combines effective antibiotic action with Stress Formula vitamin supplementation to shorten convalescence and hasten recovery. One capsule, q.i.d. supplies one gram of AUREOMYCIN, and B complex, C and K vitamins in the Stress Formula suggested by the National Research Council. AUREOMYCIN SF Capsules are dry-filled and sealed, contain no oils or paste.

Each capsule contains:

AUREOMYCIN Chlortetracycline	250 mg.	Pyridoxine (B_6)	0.5 mg.
Ascorbic Acid (C)	75 mg.	Folic Acid	0.375 mg.
Thiamine Mononitrate (B_1)	2.5 mg.	Calcium Pantothenate	5 mg.
Riboflavin (B_2)	2.5 mg.	Vitamin K (Menadione)	0.5 mg.
Niacinamide	25 mg.	Vitamin B_{12}	1 mcgm.

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Preferred for

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SURGICAL BLADES

It's Sharp



BARD-PARKER RIB-BACK SURGICAL BLADES are preferred by the Profession . . . because they know that each blade, through continuous inspection—meets every specification.

And, there are other traditionally good reasons why there is a preference for B-P RIB-BACK SURGICAL BLADES . . . they are *always* dependable and highly economical in performance.

Ask your dealer

BARD-PARKER COMPANY, INC.
Danbury **Connecticut, U.S.A.**

Mediquiz

These questions are from a civil service examination recently given to candidates for physician appointments in municipal government.

Like to see how you would fare? Answers will be found on page 118a.

1. A 35-year-old man has symptoms of intermittent palpitations, anxiety, excess perspiration. Examination reveals a blood pressure reading of 190/110 mm. Hg and glycosuria, Basal metabolic rate is + 50 percent, cholesterol 265 mg./100 cc. fasting blood sugar 167 mg./100 cc. and an intravenous histamine test produced a rise in blood pressure reading to 260/160 mm. Hg; whereas, a cold pressor test was negative. Of the following, the best diagnosis is: (A) arterio-sclerotic heart disease and diabetes mellitus; (B) pheochromocytoma; (C) hypertensive vascular disease and anxiety state; (D) adrenal cortical carcinoma.

2. A 50-year-old man complains of spongy gums that bleed easily. Complete blood count, blood smear, Rumpel-Leeds test, bleeding time, clotting time and clot retraction time are all within normal limits. Of the following, the next indicated step in evaluating the complaints is: (A) bone marrow biopsy; (B) determination of percent of prothrombin consumption in clotting; (C) referral of patient to a dentist for evaluation; (D) therapeutic trial of "rutin" to try to restore capillary integrity.

3. A 50-year-old male has had two hours of crushing substernal pain radiating down both arms and through the back; his skin is pale, cold and moist, his blood pressure reading is 90/60 mm. Hg. Electrocardiogram shows Q waves in chest leads "consistent with old infarction." Shortly after admission, pain extended to the left leg, and pulses disappeared in the femoral arteries. Urinanalysis shows 10 red blood cells per high power field. Of the following, the best diagnosis is: (A) dissecting aneurysm; (B) ureteral colic due to stone; (C) myocardial infarction; (D) arterial embolism.

4. A man of 25 years has cholelithiasis and cholecystitis; he reports that gallstones have occurred among many of his relatives below the age of 30. The one of the following diseases which would not be suggested by this history is: (A) hypercholesterolemia; (B) Thalassemia (Cooley's anemia); (C) pseudohemophilia; (D) familial hemolytic icterus.

5. In a case of suspected benzol poisoning, the most useful information is likely to be obtained by an examination of the: (A) liver; (B) blood; (C) kidneys; (D) lungs.

—Continued on page 80a

Pluralizes Potency 4 Times!



Now, 4 Clinically-Proven Sulfonamides Unite for Safe, Superior Action

Katrasul

Chimedic

By combining 4 powerful sulfas in one palatable preparation, Katrasul provides a broad-spectrum of activity 4 times as potent as any single sulfa—with toxicity reduced to practically zero.

Katrasul's quadruple formula includes Sulfadiazine, Sulfamerazine, Sulfamethazine and Sulfacetamide—individually notable for antibacterial action—in combination exerting a 4-way antibacterial spectrum of unmatched efficacy and power.

Using only fractional dosage of each sulfa results in greater solubility and the virtual elimination of crystalluria. Sensitization reactions and toxic effects approach zero.

Prescribe Katrasul to combat both gram positive and gram negative bacilli. It is effective not only against the common micro-organisms, but also the gonococcus, meningococcus, pneumococcus, staphylococcus and streptococcus infections.

Delightful coconut-custard flavor invites patient- acceptance.

•

Prompt action, safety, and pleasant taste make Katrasul highly useful in the treatment of children's infectious diseases.

•

Available: Delicious coconut-custard flavored suspension. 4oz., pints, gallons. Also in tablets.

CHICAGO PHARMACAL COMPANY

5547 N. Ravenswood Ave., Chicago 40, Illinois

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megaloblastic anemia

one of the many anemias which can be effectively treated with

PERIHEMIN*

Hematinic Lederle

Nine out of 10 of all treatable anemias respond to PERIHEMIN. Its potent formula includes every known hemopoietic agent, including Purified Intrinsic Factor Concentrate. With this single product, you provide complete anemia therapy in a form convenient for the patient.

Dosage: one capsule, t.i.d.

Each capsule contains:

Vitamin B_{12} with Intrinsic Factor Concentrate	½ U.S.P. Oral Unit
Vitamin B_{12} (additional)	5 mcgm.
Ferrous Sulfate (Exsiccated)	192 mg.
Folic Acid	0.85 mg.
Ascorbic Acid (C)	50 mg.
Insoluble Liver Fraction	50 mg.

PERIHEMIN JR *Capsules*, for children, are approximately one-quarter the potency of this formula.

dry filled sealed capsules (a Lederle exclusive!) for more rapid and complete absorption!

LEDERLE LABORATORIES DIVISION *AMERICAN CYANAMID COMPANY* PEARL RIVER, NEW YORK

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—Continued from page 77a

6. Of the various types of radiation listed below, the one which has the greatest penetrating power is radiation with: (A) gamma rays; (B) alpha rays; (C) ultraviolet rays; (D) beta rays.

7. Of the following combinations of chemical findings, the one most usually found in tetany due to hypoparathyroidism is: (A) low serum calcium, low serum inorganic phosphate, normal serum alkaline phosphatase. (B) low serum calcium, high serum inorganic phosphate, normal serum alkaline phosphatase; (C) low serum calcium, high serum inorganic phosphate, high serum alkaline phosphatase; (D) low serum calcium, high serum inorganic phosphate, low serum alkaline phosphatase.

8. The radioactive iodine tracer test of thyroid function should not be used in the presence of: (A) leukemia; (B) heart failure; (C) uremia; (D) pregnancy.

9. The one of the following fractures for which open reduction is rarely indicated is: (A) fracture of the neck of the femur; (B) supracondylar fracture of the humerus; (C) fracture of the olecranon; (D) fracture of the patella.

10. The proper treatment of a comminuted fracture of the head of the radius with displacement is: (A) immobilization in plaster; (B) sling with early motion; (C) excision of the fragments of the head of the radius; (D) immediate aspiration of blood from the elbow joint.

11. Kayser-Fleischer rings are usually associated with: (A) erythema circinatum; (B) quartan malaria; (C) hepatolenticular degeneration; (D) Gaucher's disease.

12. A man, aged 50, complains of passing small amounts of fresh blood per anus after each bowel movement. There are no other complaints, but the feces frequently have streaks of fresh blood on the surface. Of the following, the type of additional examination which is most likely to establish the diagnosis is: (A) barium enema with x-ray examination; (B) proctosigmoidoscopic examination; (C) examination of stool for ova and parasites; (D) Papanicolaou stain and study of exfoliated cells from freshly passed feces.

13. Steatorrhea is an uncommon finding in: (A) non-tropical sprue; (B) pellagra; (C) cystic fibrosis of the pancreas; (D) celiac disease.

14. Trichobezoar usually implies: (A) granuloma of rectum; (B) intestinal parasitic infestation; (C) fecalith in appendix; (D) hair ball in stomach.

15. The spinal fluid sugar is most likely to be reduced in: (A) lymphocytic choriomeningitis; (B) St. Louis encephalitis; (C) general paresis; (D) tuberculous meningitis.

16. Of the following diseases, the one in which leukopaenia is most characteristic is: (A) kala-azar; (B) leptospirosis; (C) actinomycosis; (D) lobar pneumonia.

—Concluded on page 108a



in URINARY DISTRESS

Pyridium®

(Brand of Phenylazo-diamino-pyridine HCl)

provides gratifying relief in a matter of minutes

Painful symptoms impel the patient with acute or chronic pyelonephritis, cystitis, urethritis or prostatitis to seek your aid. In the interval before antibiotics, sulfonamides or other antibacterial measures can become effective, the nontoxic, compatible, analgesic action of PYRIDIUM brings prompt relief from urgency, frequency, dysuria, nocturia or spasm. At the same time, PYRIDIUM imparts an orange-red color to the urine which reassures the patient. Used alone or in combination with antibacterial agents, PYRIDIUM may be readily adjusted to each patient by individualized dosage of the total therapy.

SUPPLIED: In 0.1 Gm. (1½ gr.) tablets in vials of 12 and bottles of 50, 500, and 1,000.

PYRIDIUM is the registered trade-mark of Nepera Chemical Co., Inc., for its brand of phenylazo-diamino-pyridine HCl. Sharp & Dohme, Division of Merck & Co., Inc., sole distributor in the United States.

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OVARIAN DECLINE OFTEN PROVOKES VARIETY OF DECEPTIVE SYMPTOMS

ALL EFFECTS TRACEABLE TO SINGLE CAUSE

Reduced Estrogen Production Deprives Menopausal Patient of an Important Metabolic Regulator

■ **Women in the menopause frequently present a wide range of signs and symptoms suggesting a variety of organic, metabolic, or psychogenic disturbances.**

■ **Estrogen is intrinsically involved in numerous biologic functions either directly (as in the sex-linked organs) or indirectly by influencing general body metabolism.**

■ **"Premarin," naturally occurring conjugated estrogens (equine) used in replacement therapy, produces prompt relief of distressing symptoms and imparts a "sense of well-being."**

"Hot flushes" are generally considered typical of the decline of ovarian function; however, they are by no means the only overt symptoms encountered.

Other cardiovascular symptoms, for instance, may include tachycardia, dyspnea and palpitations, or they may be represented by the triad of cold extremities, numbness, and tingling. Werner[1] observed the former in nearly 70 per cent, and the latter in over 48 per cent of cases.

Nervousness and excitability, lassitude, depression and vertigo, as well as other neuropsychiatric symptoms may all occur as a direct result of the menopause. Symptoms involving the musculoskeletal system simulating arthritic conditions are not infrequent.

This wide range of symptomatology in the menopause may well be rooted in the close relationship of the steroid hormones to numerous metabolic functions of the body.

Changes in concentration and distribution of lipids in the blood due to estrogens have been observed by several investigators.[2,3,4] Marett and associate,[3] and Barr[4] reported decreases in serum cholesterol and total lipid, and increases in serum phospholipid levels following administration of "Premarin."

Likewise, the metabolism of carbohydrates is influenced by estrogens as shown by Morton and co-workers,[5,6] and it has been claimed that estrogen may affect the balance between the metabolism of carbohydrate and fat.[7]

Osteoporosis occurs in about 10 per cent of postmenopausal women.[8] It is a disturbance of osteoblastic activity that is directly related to the role of estrogen in bone matrix formation.

The wide range of estrogen influence on the body economy is also illustrated by changes occurring in hyperestrogenism, for instance in the premenstrual tension syndrome. There, extracellular fluid is accumulated and forms edema as a result of sodium and water retention. Decreases in blood sugar levels below the normal range manifested by hypoglycemia have also been observed premenstrually. Diabetic patients often require less insulin

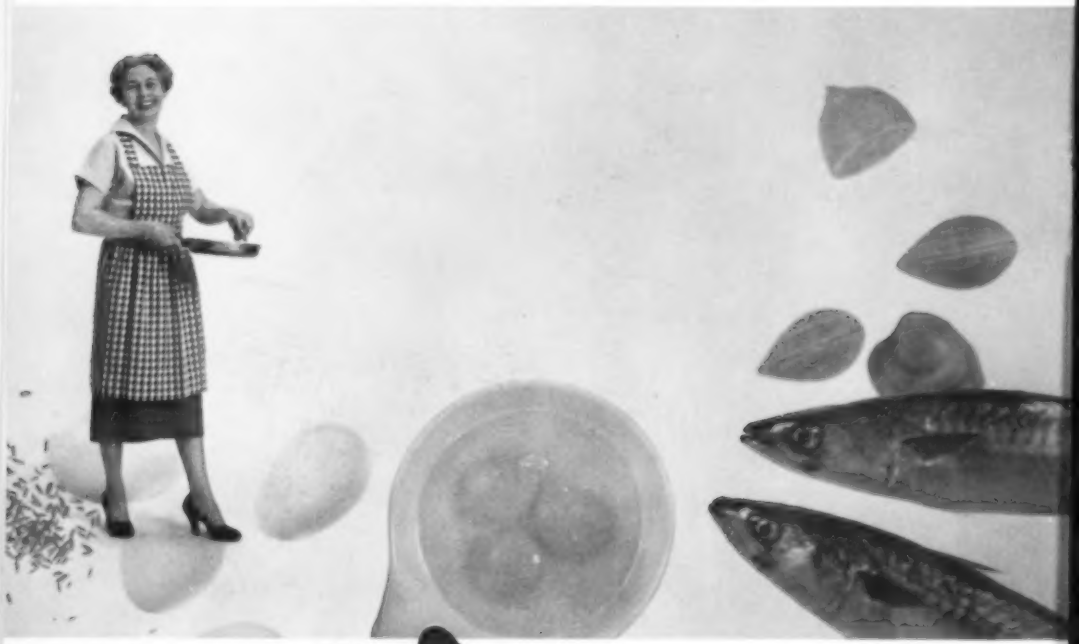
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A sense of well-being is a woman's privilege!

EVERY WOMAN WHO SUFFERS IN THE MENOPAUSE
DESERVES "PREMARIN," WIDELY USED
NATURAL ORAL ESTROGEN

A "sense of well-being" is an added benefit in "Premarin" therapy which restores a brighter mental outlook to the woman who suffers from the menopause and pre- and postmenopausal syndrome.



Purple Tablets 2.5 mg., 20's, 100's and 1,000's

Yellow Tablets 1.25 mg., 100's and 1,000's

Red Tablets 0.625 mg., 100's and 1,000's

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Liquid 0.625 mg. per 4 cc. (tsp.), 120 cc. (4 fl. oz.), bottles

When there are symptoms of declining ovarian function, "Premarin" produces prompt relief of physical distress and imparts a feeling of "well-being." "Premarin" presents the complete equine estrogen-complex. Has no odor, imparts no odor.

Average Dosage: 1 to 3 tablets (1.25 to 3.75 mg.) daily, in 21 day courses with a rest period of one week. For further details, see facing page.

"PREMARIN"® Conjugated estrogens (equine)

in the menopause and pre- and postmenopausal syndrome

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LITHO IN U.S.A.

Ovarian Decline Provokes Deceptive Symptoms *(Continued)*

at high premenstrual estrogen levels, and more insulin as ovarian function wanes in the climacteric.

The exact mode of action of estrogen, as far as all these metabolic phenomena are concerned, is not yet fully understood. But it has been established that estrogen at least shares in the responsibility for changes in metabolic and electrolyte patterns. As stated by Goldzieher,[9] estrogen is indeed ". . . one of the most important metabolic regulators of the organism."

The decline of ovarian function – in the menopause and in the pre- and postmenopausal state – is bound to be reflected in metabolic disturbances. The signs and symptoms that may result are therefore not always readily recognized for what they are: symptoms of the menopause.

A realistic approach to correction of these undesirable effects of ovarian decline is estrogen replacement therapy.

In stressing both the usefulness and safety of estrogen therapy at a recent Cornell University Practitioners' Conference, Cohen[10] stated that "The majority of patients can be handled by prescribing the average dose of estrogens." Hamblen[11] points out that ". . . estrogens afford specific treatment and should not be denied the patient."

The Complete Estrogen Complex. "PREMARIN"® contains all the naturally occurring components of the equine estrogen-complex in the form of water-soluble conjugates. The potency of "PREMARIN" is declared in milligrams of conjugated estrogens (equine) expressed as sodium estrone sulfate. "PREMARIN" is standardized in terms of the weight of active, water-soluble estrogen content.

Recommended Dosage. To obtain prompt symptomatic relief and a gratifying "sense of well-being," "PREMARIN" is initially given in daily doses of 1.25 mg. After 4 or 5 days, if the response is not sufficient, the dosage is increased to 2.5 and up to 3.75 mg. daily, in divided doses.

As soon as symptoms are under control, the dosage may be reduced to a maintenance level of 0.625 mg. daily or less. "PREMARIN" is given in approximately 21 day courses with rest periods of five to seven days between courses.

Fifteen years of clinical acceptance support the use of "PREMARIN" as a highly effective and notably safe natural, oral estrogen.

The clinical observation that "PREMARIN" furthermore imparts a "sense of well-being" has been confirmed in the literature.[12]

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DYSPEPTIC DOT LIKES HER MENU HOT

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6041

Diabetics

Metalobic Function Tests in Uncontrolled and Controlled Cases

ROBERT E. MARK
Rostock, Germany

Young noted that many apparently diverse means of inducing diabetes exert a common action on the islets of Langerhans, and also that insulin deficiency and excess of an anterior pituitary factor may have similar effects. In all kinds of permanent diabetes there seems to be a change in the alpha-beta cell ratio with a plus for the alpha cell system (Ferner), so that it is always an insulin diabetes. The classic views of Naunyn, Minkowski and others concerning the pancreas as the central seat of the diabetic metabolic disturbance is not disproved but extended by the modern experimental physiology. Disturbances not only of carbohydrate but of total metabolic interrelations dictate the combined treatment of sparing and exercising the pancreas. The catabolic pathways of carbohydrate, amino-nitrogen and fat metabolism cross at many points. The classic lines of their demarcation become progressively less important (Joslin). Sugar and ketones can be formed from amino acids, and large amounts of dietary protein also have a specific action upon the endocrine system. (Horn).

Clinically, a proper balance should be found between extreme undernutrition and a "glycosuric paradise". There is much evidence that prolonged hyperglycemia can at least increase progression of diabetes. The experiments of Haist, Campbell and Best, and especially Lukens and Dohan, corroborate the injury of islets of Langerhans by high blood sugar. According to a Boston questionnaire (1951), 70 per cent of diabetic specialists advocate normoglycemia, 23 per cent aglycosuria, while only 7 per cent permit glycosuria. Moderate undernutrition was represented in the diets of Bouchardat ("mange le moins possible") and Naunyn ("moderation in general") while von Noorden wrote in 1933: "fat-poor diet, which means a low caloric diet, will be the future diabetic regimen". The fundamental principle established by Allen, namely improvement of assimilation by reduction of body mass and metabolism, was carried out by first attaining aglycosuria and normoglycemia, then gradual increases of carbohydrate and calories to a limit fixed by the tolerance in the individual case.

The relative deficiency of fat and

Paper given at the Second International Congress of the International Diabetes Federation, Cambridge/England, 8th July 1955.
Aus der Medizinischen Universitäts-Poliklinik Rostock (Direktor: Prof. Dr. Robert E. Mark).

protein in Germany in wartime compelled a modified application of this principle in a form which has not been described elsewhere, namely a high carbohydrate regimen with aglycosuria and normoglycemia maintained by total caloric limitation and moderate insulin dosage when required, also exercise (Mark, Kaeding and Moeller). In 75 per cent of 319 institutional patients the carbohydrate ranged 200 to 300 grams, and in 25 per cent 310 to 450 grams, with 60 to 100 grams protein and only 40 grams fat. The step-wise increase of the carbyhydrate and calories is illustrated in graph 1.

The following is an analysis of the seven-year experience with this group. Patients aged above fifty comprised 81 per cent of 111 cases classed as mild, and 58 per cent of the remainder classed as moderately severe. Over weight was present in 36 per cent of the former and 17 per cent of the latter. Altogether 192 patients (80 per cent of the milder, 51 per cent of the more severe group) were discharged with aglycosuria and normoglycemia on diets containing 200 to 300 gm. carbohydrate, while 63 had glycosuria of less than 10 grams. There was better control in newly discovered cases (79 per cent aglycosuric) than in long-standing cases (50 per cent aglycosuric). Three to six months later, 70 per cent of those discharged aglycosuric remained so, while 78 per cent of those discharged with glycosuria remained glycosuric. Also, 90 per cent of 209 controlled diabetics gained weight in 6 months, there being an average gain of 8 pounds in the milder cases without insulin and 10 pounds in the cases with insulin.

This clinical synopsis is introductory to the main purpose of the study, namely comparisons of various metabolic

Graph 1

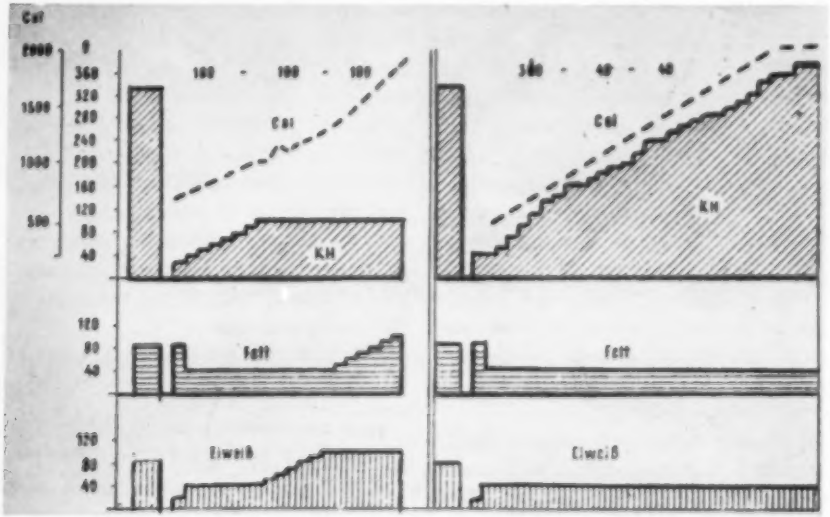
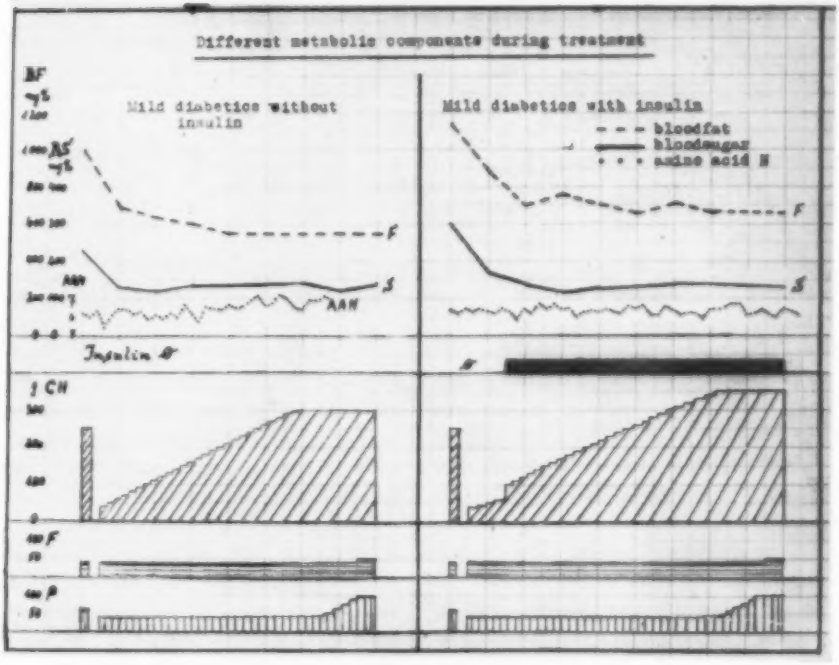


Table 1

FASTING AVERAGE BEFORE AND AFTER TREATMENT	Before		After	
Basal metabolism	+23%	(60)	+11%	(60)
RQ	0.70	(60)	0.83	(60)
Blood sugar	273mg%	(24)	117mg%	(24)
Blood fat				
Total	401 "	(48)	302 "	(41)
Serum	1100 "	(34)	550 "	(22)
Amino acid nitrogen	6.51 "	(27)	6.81 "	(20)
Total protein	7.3%	(39)	7.5%	(39)

( ) number of cases.

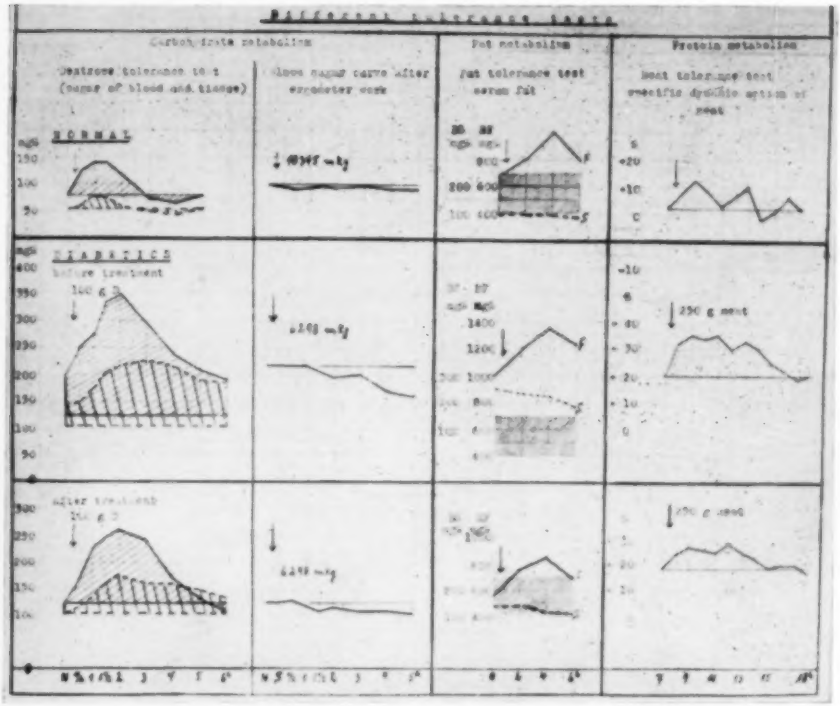
Graph 2



factors in uncontrolled and controlled diabetes. The average observations in a fasting state show a clear tendency toward normal. (Kaeding, Geissler, Beckert).

I. Table I illustrates that tendency as regards basal metabolism, respiratory quotient, blood sugar, blood fat, amino acid nitrogen and total protein. Similar findings are shown in Graph 2.

Graph 3



II. Graph 3 illustrates tolerance tests with feeding of dextrose or fat, also the response to muscular work and the specific dynamic action of protein. The lower glucose curve and better return toward normal conform to expectations in the controlled cases. The bicycle ergometer test also shows better regulation of blood sugar (Moldt). The abnormal alimentary hyperlipemia approaches normal after treatment (Kaeding). The specific dynamic action of meat is also nearer to normal after treatment. In addition, reference may be made to a more normal behavior of leukocytes after treatment (Seitz).

III. To test insulin sensitivity, we followed insulin glucose tests for 90 and also 180 minutes with observations on sugar, fat and amino acid nitrogen, without finding any exact metabolic interrelations (Westphal).

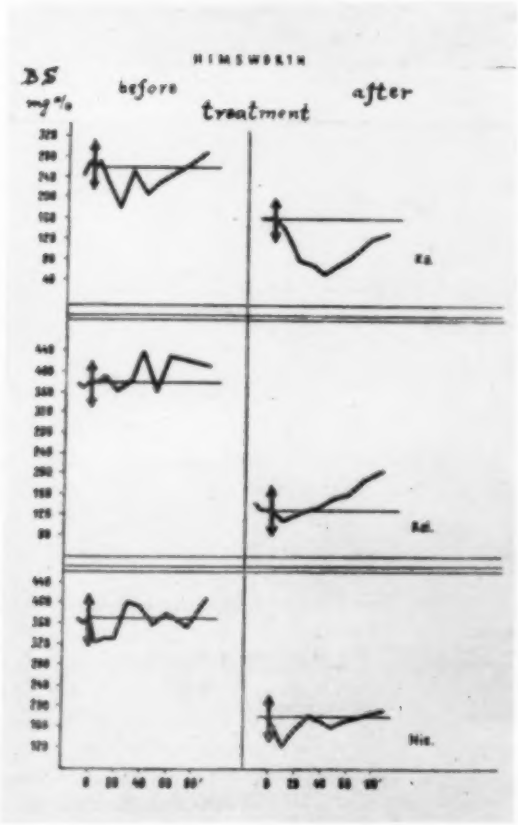
Comparing 175 Himsworth tests with reference to age, body weight, blood pressure and insulin requirement, there was no indication of different types as described by Himsworth. Also age, body weight and insulin sensitivity showed no linear relationship. (Table 2).

About half of untreated glycosuric diabetics showed a distinctly notched curve of blood sugar, but following treatment there was often an equalized curve. (Graph 4).

Table 2

HIMSWORTH — TEST	Insulin-sensitive 101	Insulin-insensitive 47
Aged over 50	65%	74%
Overweight	38%	43%
Hypertension	26%	19%
Need of insulin	49%	51%

Graph 4

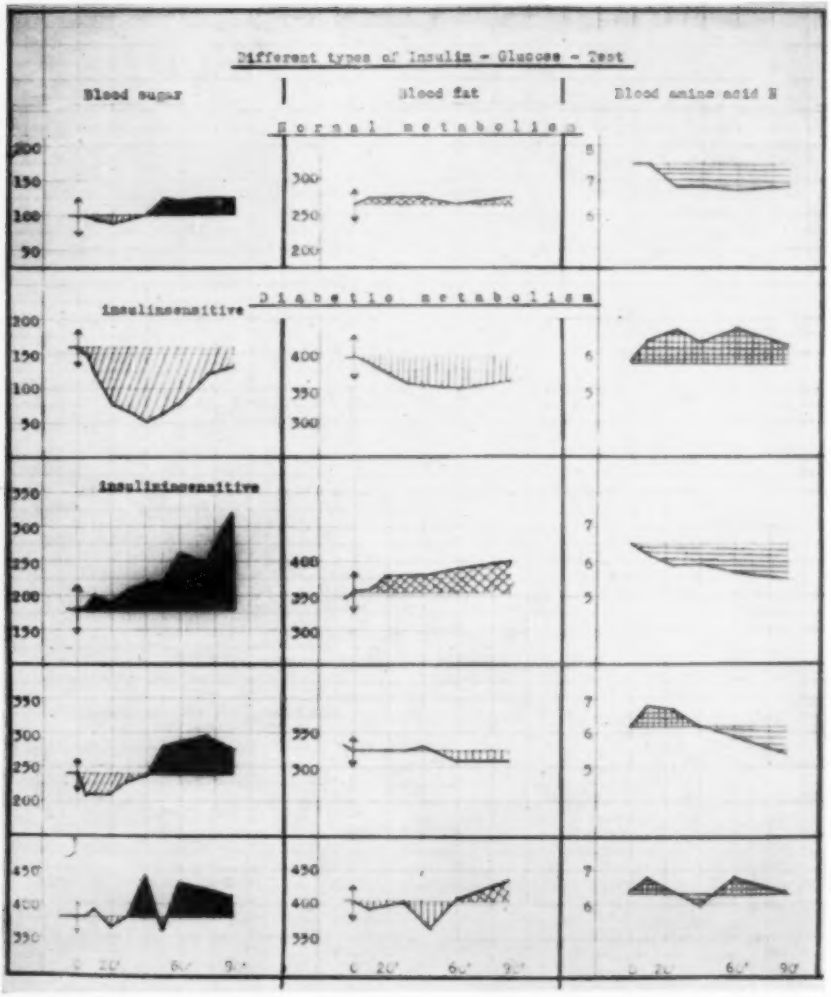


Graph 5 shows averages of blood sugar, blood fat (Beckert) and amino acid nitrogen during insulin-glucose tests. The falling tendencies of the blood fat and amino nitrogen curves are noticeable.

Graph 6 illustrates the influence of the preceding nutrition upon the insulin-glucose test. In 30 of 45 cases there was a transient inuslin insensitivity following one day of hunger.

After successful treatment insulin sensitivity increased or remained unchanged in 61% of 130 cases; primarily insulin insensitive cases often became sensitive. 24 of 72 mild and 9 of moderately severe diabetics (25%) reached a remission. The blood fat curve in 11 of 20 patients shows an approach to the norm. There was no definitive correspondence of insulin sensitivity and blood fat.

Graph 5



The Graph 7 for all three metabolic components shows the possible change of course in the Himsworth test before and after treatment. This fact does not support any classification into different types.

Amino acid nitrogen during Himsworth tests must be investigated further (Westphal). There was a tendency to fall with or without initial increase. Amino acid nitrogen curves of cases with insulin-sensitive blood sugar curves sometimes showed sharper fall than sensitive cases. Blood amino-acid-N-

curve of mild diabetics decreased after treatment.

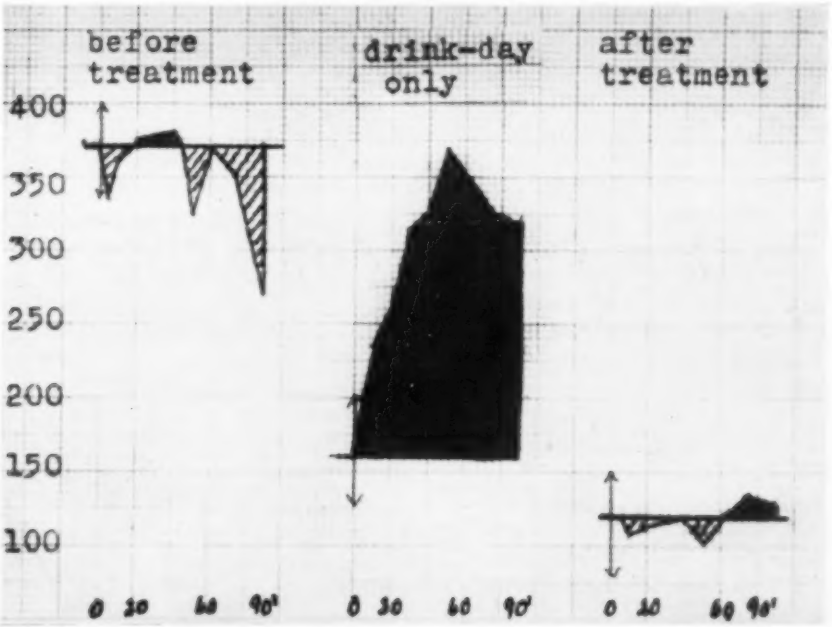
According to these studies, the course of the Himsworth test is largely affected by the metabolic condition and the preceding diet.

Summary

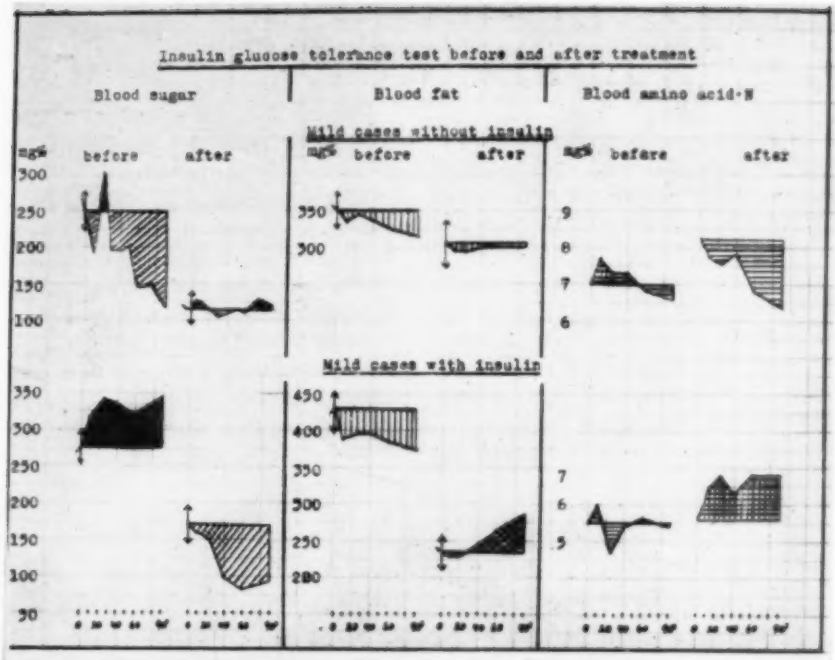
A brief survey is given of a seven-year experience with 319 mild or moderately severe diabetic cases treated in a rather unusual manner by undernutrition followed by a stepwise increase of diet. Owing to economic conditions, the final diet was high in carbohydrate and low in fat. The objective of aglycosuria and normoglycemia was accomplished in the great majority of these cases, without insulin in the mild ones and with moderate insulin dosage in the others.

This objective is supported by a variety of chemical and functional tests, showing a general return of all the variables toward normal as the sugar tests are normalized. The recently elucidated interchanges between carbohydrate, protein and fat metabolism strengthen the concept of treating diabetes as a disorder of total metabolism.

Graph 6



Graph 7



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Rembrandt Strasse 18

Chronic Ulcerative Colitis

This summarization attempts to cover the essential information on the subject, including therapy, and is designed as a time-saving refresher for the busy practitioner.

Chronic ulcerative colitis is a depleting, wasting, and disagreeable disease. It is characterized by its chronicity and periodicity, and by the marked changes which it produces in the large bowel. These changes in turn give rise to numerous severe systemic effects and clinical manifestations. As a result of these changes, the individual sufferer may well be brought to the point of invalidism with its resultant hardship and problems for the patient and his family. Because of these far reaching effects, this disease should be of great concern to all physicians.

Etiology and Incidence The etiology is unknown. Bargen,[1] who has studied this subject intensely, cites four possible factors:— 1) infection by bacteria; 2) metabolic disturbances, particularly of the steroids and related substances (ACTH and Cortisone); 3) enzymatic action on the intestinal mucosa; and 4) psychosomatic stress. To these may be added allergy which does seem to have some affect. The precipitating factor in the onset or recurrence is most often an acute upper respiratory infection. In the light of our present knowledge, we can best say that a combination of several of these factors is necessary to cause an attack.

The disease occurs at any age from infancy to senility. However, it manifests itself most frequently in the late teens and early twenties. Sex, race and heredity apparently have no bearing on the occurrence of this disease.

Symptoms The symptoms vary in intensity and severity with the stage of the disease. The onset is usually insidious with the patient complaining of malaise, weakness, generalized aches and pains, headaches, and the possible presence of some elevation of temperature. This picture is no different from that of many other infectious processes. One's attention is first drawn to the intestinal tract by the nature of the bowel movements. At the onset, there is usually a solid movement, followed in time by one or more liquid movements. As time

goes on, these movements become more and more frequent so as eventually to keep the patient confined to the bathroom or bed pan.

The bowel movements as a rule are preceded by low abdominal cramps of varying intensity. As the process progresses, these cramps become more frequent and more severe. At first the stools are watery, liquid and clear. But in a short time they show evidences of mucus, pus, and blood. As time goes on, these components all increase in quantity.

With the downhill progress of the disease, the patient begins to show signs of dehydration, toxicity and debility. These continue and become more severe and marked if the disease proceeds untreated or unhalted.

Occcasionally, the first evidence of chronic ulcerative colitis is manifested as an attack of an "acute abdomen." This is revealed by sudden onset of severe abdominal pain, followed by collapse. There develop marked abdominal tenderness and rebound phenomenon, spasticity and abdominal wall rigidity. These attacks are caused by the penetration or perforation of a preexisting ulcer, or by the formation of a localized peritoneal abscess. In such cases, surgery usually reveals the underlying cause.

The average or less severe case responds in time to treatment and proceeds to make some degree of recovery. However, these people are never quite well and after varying intervals they have a recurrence either in a similar or different form. Over the years, there is a tendency for the attacks to become more severe, more frequent, and more prolonged. Eventually this can well lead to a life of total disability and invalidism.

Diagnosis The diagnosis is made through a careful and thorough history,

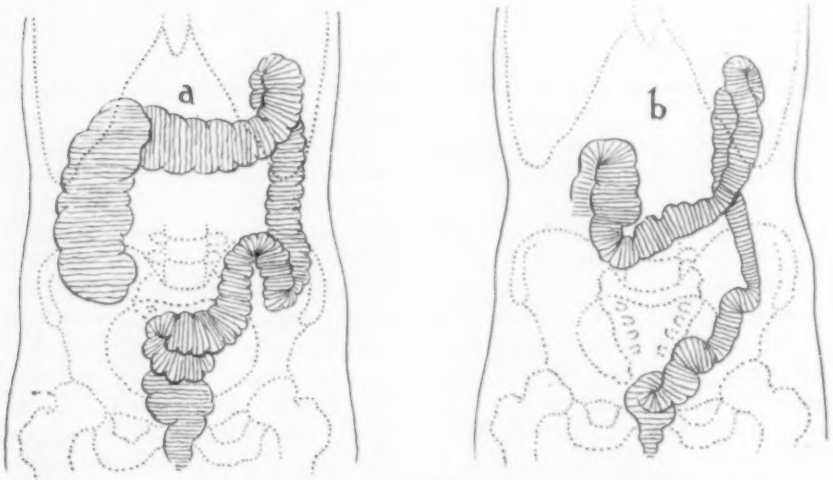


Fig. 1. Diagrammatic drawing showing the difference between a normal colon **(a)** and the colon in a case of CUC **(b).**

physical examination, proctoscopic examination, x-ray studies and specific laboratory studies.

The history is most important and should cover the essential points of mode of onset and duration of symptoms; the consistency, frequency and character of bowel movements. Further questioning should reveal any places of travel preceding the onset of symptoms in an effort to rule out any specific infecting organism. In a similar manner, a thorough study should be made of any potential allergenic foods. Occasionally one finds that some specific food can cause symptoms similar to those of chronic ulcerative colitis.

Physical examination routinely performed, in the early stages gives little evidence of the nature of the patient's illness. As the disease recurs and progresses the patient gradually shows signs of wear and tear—debility, anemia, emaciation, worry and fatigue. At times the skin will present a characteristic greenish hue. But this is usually found only in the acute and more advanced stages. Of course if there is an acute onset due to perforation, etc. of the ulcer, then one naturally finds the signs of an "acute abdomen."

It is only when one turns to the rectum and colon that he finds the true nature of the condition. Inasmuch as ulcerative colitis usually begins low in the rectum or signoid as a diffuse, infectious process, one must carefully examine these structures in any suspicious case. On digital examination the rectal mucosa frequently has a smooth, velvety feel. On withdrawing the gloved finger, one will frequently notice the presence of pus, blood or mucus on the glove.

The diagnosis is usually made by proctoscopic examination. This procedure[6] should be carried out with the utmost care and gentleness. No preparation of the patient is done as a rule. However, if he is too apprehensive or nervous, a mild sedative may be given. Likewise, if the patient is too tender or sensitive, it may be well to apply a surface-acting anesthetic into the anal canal. The scope is introduced slowly, gently and with the utmost caution, to prevent further trauma to an already damaged tissue. For the same reason, only as much of the scope is introduced as is needed to make a diagnosis. There is no need for going beyond this point, nor is there any necessity for repeating the procedure unless complications set in or there is cause to question the diagnosis.

The findings naturally vary with the stage of the disease process. In the early cases, one seldom sees any discrete ulcers. In the rectum and sigmoid, there appears to be only a diffuse inflammation of the mucosa. A very diagnostic point here is the increased fragility of the mucous membrane.[9] If one swabs the mucosal surface with a dry cotton swab, he produces an immediate exudation of blood and mucus and a simultaneous and immediate increase in the redness of the mucosa, with no normal areas of mucosa present in the involved region, diagnostic in spite of the absence of ulcers.

As the disease progresses, further changes take place in the lining membranes. The color slowly and gradually changes until it takes on a pinkish hue; the mucosa appears opaque and velvety, and becomes covered with a grayish mebrane often streaked with blood.

At various stages one may see singly, or in combination, hyperemia, edema,

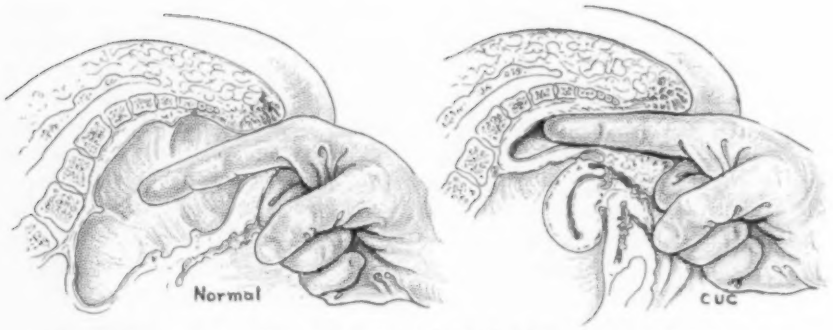


Fig. 2. The narrow rectum in a case of CUC fits the examining finger snugly in comparison to the looseness of the normal rectum around the examining finger (after Drake).

miliary abscesses and ulcers. Many of the abscesses appear as yellowish elevations under the mucous membrane. The ulcers vary in size and shape and give to the mucous membrane a chewed-out appearance. From under these ulcers, the mucous membrane pushes out to form tags or pseudopolyps. In later stages, the mucosal folds become markedly edematous and exhibit a more or less constant oozing of blood from the entire surface of the bowel.

Laboratory Studies Routine blood counts and urine analysis are performed for general information only. They have no actual value in the specific study of this condition. However, the laboratory is of great value in studying the contents of the intestinal tract and the fecal discharges. At the time of proctoscopic examination, such material as is available should be removed and submitted for complete study. These specimens should be kept warm from the time of removal until the end of their examination. They should be examined for parasites, ameba and enteric pathogens, especially shigella. They should be further examined for pus cells, fat, undigested food particles and blood. If no gross blood is found then a test for occult blood should be done. In addition to such microscopic study, this material is submitted for culture. Suitable media are innoculated with this material and cultured in an attempt to identify or isolate any specific microbial agents. In addition to these studies, agglutination tests are performed for the dysentery groups of organisms. The patient is also tested for lymphogranuloma venereum with the Frei Antigen. All of these procedures are carried out with the hope that some specific offending organism can be found, and so proper antibiotics or chemotherapeutic agents used.

Following completion of these studies, final resort is found in x-ray examination of the colon and lower bowel. Such examinations are carried out for the purpose of establishing a permanent record as to severity and extent of damage and for comparison at some future time, if needed. Just as with the proctoscopic examination, so with the x-ray study, great care should be taken to be most careful and gentle and to cause no further trauma to the intestinal tract. For this reason, neither castor

oil orally, or soap suds rectally, are used to clean out the bowel. If any cleaning is needed, a warm tap water enema, gently administered, must suffice. During the time of examination, it is unnecessary to demonstrate any abnormality of motility, and it is therefore needless to palpate the abdomen or bowel with a heavy lead glove.

In the interpretation of x-rays there are several important points to remember. In very mild cases, early in the disease, there may be no radiologic findings. The earliest findings occur in the rectum and sigmoid and are seen as a change in the appearance of the mucosal folds. In place of irregular position of the folds normally found, we see parallel lying folds which appear coarse and heavy rather than crinkling. Frequently the post- evacuation film shows more accurately the extent or presence of a disease process than does the pre-evacuation film. In such films we see serrations of varying size and distribution scattered throughout the mucosa. These are representative of the erosions present. In later stages, we see the loss of haustrations, shortening of the colon, and roughening of the outline. Continuing and repeated attacks lead to eventual fibrosis which is shown by the smooth rigid outline of the colon. Although these are the typical findings, we must realize that there is no correlation between the x-ray pictures and the clinical findings. In fact, it is not essential that there be any radiological evidence present in order for one to make a diagnosis of chronic ulcerative colitis.

This condition is so complicated that all of the above steps are necessary for accurate diagnosis. Through such procedures one can then safely eliminate any specific offending pathogen as a causative factor in the production of this most annoying and inconvenient condition.

Treatment Chronic ulcerative colitis can be approached therapeutically from the medical and surgical points of view. We shall discuss both of these.

Medically we have several weapons to use—none of these has been completely successful. We may employ diet, drugs, and psycho-therapy, alone or in combination.

It is questionable whether diet, in itself, has much influence on the course of the disease. Probably in the acute stages it would be wise to stick to a mild, bland diet which contains a minimum of residue. Unfortunately such a diet frequently contains considerable quantities of milk and milk often aggravates the diarrhea and bloated feeling of the patients. In such cases, milk should be omitted. The ideal situation is for the patient to eat whatever he likes, in whatever quantity he likes, so long as it does not disagree with him. Unfortunately these patients exhibit a pronounced gastrocolic reflex so that immediately after eating they have the desire to move their bowels. Consequently, they soon develop the feeling

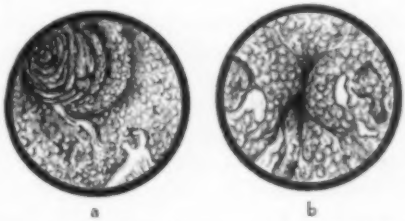


Fig. 3. Protoscopic appearance of CUC.
a. Pre-ulcerative CUC.
b. Granular appearance of the mucosa and ulceration in CUC (after McNett).

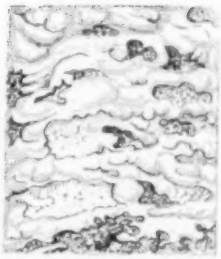


Fig. 4. Section of the colon showing the ulcers separated by bridges of mucosa in a case of CUC (after Boyd).

that this food or that causes their difficulty. In time, they begin to suspect more foods and so develop a smaller and smaller group of foods which they will eat. It is up to the physician then to patiently and carefully explain the nature of the gastrocolic reflex and to help the patient determine which foods actually do give him trouble. Such foods may act in a mechanical way or they may be definitely allergenic. In prescribing the diet it would be best for the physician to discuss with the patient his likes and dislikes; and then together with him map out a schedule of meals which are pleasant and satisfying. Such meals should supply an average of 2500 to 3000 calories a day and should be high in protein.

The fact that many drugs have been used is clear evidence that we have no specific remedy. Some of these are used as supportive measures, some to attack possible infections and some empirically.

Sedation is necessary in many of these patients, and for this purpose phenobarbital ¼ grain to ½ grain, three or four times daily should suffice. It may be necessary to supplement this at bedtime with some stronger preparation or larger doses of phenobarbital. Together with the sedatives, anticholinergic drugs may be of some value because of their slowing of the rate of gastric emptying and their effect on intestinal motility. Diarrhea itself may be relieved or controlled temporarily by bismuth preparations, to which may be added calcium carbonate and calcium phosphate. The injudicious use of paragoric or codeine to control the diarrhea early in the course of treatment is to be condemned. However, if all else fails and the symptoms persist, then it may be necessary to fall back on these old stand-bys.

In the line of specific therapy, we have the antibiotics and chemotherapeutic agents. First recourse is to the sulfa drugs — the most useful of these being sulfaguanidine, sulfasuxidine, and sulfathalidine. The triple sulfonamides are often of value. It these do not prove beneficial, then one must resort to the antibiotics. These are given in adequate doses together with the sulfa drugs for a period of two to three days. If successful, the program is continued: if not then that particular antibiotic is discontinued, and another used in its place. A still further effort may be made to control the condition by employing Azulfidine[16] in large doses for several days time. When all else has failed, this may produce a remission.

The use of corticosteroids[13, 15] has been given considerable study and there are two schools of thought about their use. One group feels that they should be reserved only for the severe cases; the other that they should be used in all cases. Each case must be decided on its own merit and by the experience and qualifications of the physician in charge. The great danger from using these drugs is that of precipitating a perforation. Certainly when used, these preparations do improve the sense of

well being of the patient. ACTH may be given in one of the following ways: 1) as ACTH gel 50 units intramuscularly per day; or 2) twenty units in 1000 cc. of glucose water solution by slow intravenous drip over a twelve hour period. When physiologic effects of hyperadrenal corticism are obtained the dose is diminished by 5 units daily until a satisfactory maintenance dose is reached.

If the response to ACTH is not satisfactory, a course of cortisone or hydrocortisone may be instituted. These are begun in daily doses of 100 mgs. given intramuscularly. If a satisfactory response is obtained, the drug is continued in this dosage until maximum improvement is obtained. Then a gradual reduction is made until the proper maintenance dose is reached. There is no way of predicting or foretelling the size of the dose needed nor the duration of treatment with these therapeutic agents.

At times, especially in acute cases, considerable supportive therapy is needed. For this purpose, transfusions of whole blood are best. In addition, fluids parenterally may be almost life saving. Anemia is treated by injections of liver and other hematinics as tolerated. Vitamins A, C and K are given in large doses either intramuscularly or orally.

The third step in treatment is psychotherapy.[5, 10] This is the cornerstone of any really successful course of treatment. Although there is no concrete evidence that emotional factors play a role in the causation of this condition, nevertheless clinical experience and knowledge have proven that a vast majority of the acute episodes are associated with just such emotional upsets. Treatment must then be aimed at minimizing or preventing these episodes. To accomplish this goal, the physician must be able to instill complete confidence in the patient. He must be made to feel that the physician knows all about his disease and that the prescribed course of therapy will definitely benefit him. When such confidence is gained, the patient may then be able to unburden himself and discuss his many problems and worries. A careful and sympathetic discussion of these will often help to allay the patient's qualms and return him to a more stable attitude. As a corollary, the patient can then be made to recognize his many positive values (those things he can do and can do well) instead of concentrating on the negative aspects of his life. All of this is a time consuming procedure; it may even require the aid of a trained psychiatrist. But if the general practitioner is willing to spend the time and effort, he will frequently find himself well repaid by the gratitude of the patient and his family, and the knowledge that he has saved another individual from becoming a hopeless invalid. When the patient develops the proper psychological outlook, then he may well be able to carry on a practically normal life.

In spite of all efforts to cooperate in the medical management, and because of the recurrent and progressive nature of the disease, there are those cases which must be treated surgically. When this occurs, it is well to have the treatment carried out through a well organized team of internist, surgeon, pathologist and laboratory assistants.

The purpose of surgery in these cases is to rehabilitate the chronic invalid,

or to prevent the development of such invalidism. When the symptoms are uncontrolled and the patient's general well being is constantly threatened, when life becomes a series of severe and repeated bouts of diarrhea and incontinence, then it is well to consider surgery. Today there are those men who feel that we should not wait this long to operate. It is their contention that surgery should be performed early in the course of the disease. Others feel that surgery should be done only in the later stages or in case of emergencies. Whatever time is elected depends then on the experience and judgment of the surgeon and co-workers. The exact procedure also depends on the opinion and ability of said surgeon. Whether the operation is done in one, two, or three stages should be left to the surgeon. The present trend appears to be the early establishment of a permanent ileostomy. This is then followed by removal of the colon down as far as the rectosigmoid juncture. The final step is the removal of the rectal stump, which should be accomplished as soon after the colectomy as possible.

Follow-up care is very important for these people. Immediately following surgery one must begin to teach the patient to live with his ileostomy.[11] It is of course essential to have an adequate stump which will fit satisfactorily into the ileostomy bag which can then

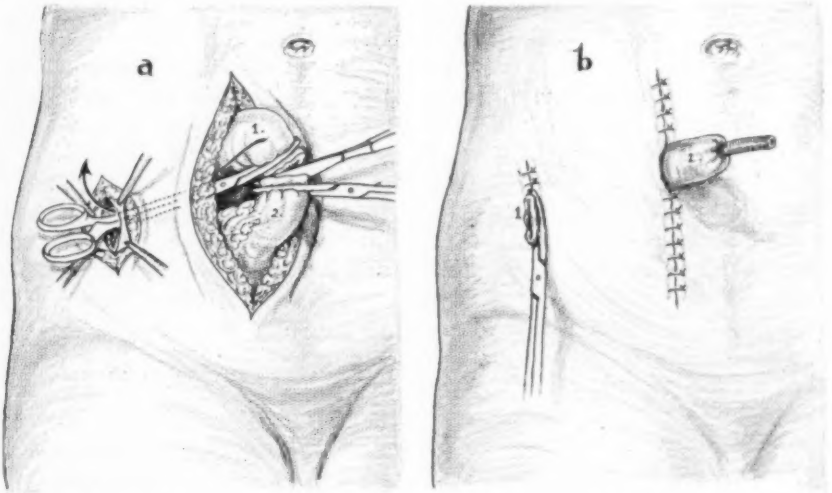


Fig. 5. Terminal ileostomy with implantation of the proximal and distal ileal limbs into separate incisions (after Lahey).

a. Method used to draw the distal limb into the stab incision.

b. Appearance of the completed operation.

1. The skin edges surrounding the distal limb are approximated with one or two interrupted sutures. The clamp is left in situ for about four days until the gut becomes firmly adherent to the abdominal wall.

2. For the first week drainage is maintained through a tube. After the first week the intestine is allowed to discharge into a specially fitted ileostomy bag.

be firmly and snugly fitted into place. The patient must also be taught how to cleanse and care for the skin surrounding the ileostomy; and finally he must be encouraged in the development of satisfactory and regular bowel habits. With proper training and with adequate psychological encouragement, these people can learn to live a reasonably comfortable and useful life. Certainly they will be more comfortable and happy than they were when undergoing the steady downhill course of the normal progress of this disease.

Complications These are the cause of as much discomfort and damage as is the colitis itself. They may be classified as local and generalized; and are amenable to medical or surgical treatment.

The localized complications are the result of the frequent passage of irritating stools with its resultant tenesmus, spasm, edema and inflammation of the mucosa. These sequelae are such as pruritus, fissures, hemorrhoids, cryptitis, strictures, and abscess formation. Many of these can be prevented by careful attention to the rectum and colon. The judicious use of ointments or suppositories to soothe the inflamed mucosa; gentle digital stretching of the rectum to prevent strictures; the use of warm moist dressings; the employment of Sitz baths; these all help to relieve and prevent local complications. If hemorrhoids should become too large or annoying they should be removed as simply as possible. Likewise, a peri-rectal abscess must be treated as simply as one can surgically.

The generalized complications are those confined to the skin, eyes, joints, blood vessels, and to the entire body. The skin is involved with erythematous nodules of varying size and degrees of tenderness, which usually resolve themselves spontaneously. Keratitis and iritis are the ocular complications and these are best treated by pilocarpine and a cortisone-antibiotic combination locally. Arthritis is a fairly common complication which frequently responds to salicylate therapy or to the steroids if they are employed. The blood vessels involved are those of the thighs or legs; the resultant complication is a thrombophlebitis which is treated by rest, heat, injections of trypsin and antibiotics. Of course, one serious complication is complete invalidism. This does occur at times in spite of all our efforts to prevent it.

In addition to the so-called medical complications, there are those which we must consider as surgical ones. They are perforation, massive bleeding, polyposis, stricture, fistula, and malignancy.

These are all treated by the procedures usually employed by any competent surgeon. One further word about complications is concerned with the frequency of malignancy in chronic ulcerative colitis. Cattell and Colcock[4] state, "The overall incidence of carcinoma in ulcerative colitis is probably less than 5 per cent. In those patients who come to surgery, it rises to approximately 10 per cent, and in that group of patients who have had the disease for 10 years or more, it has been found to range from 25 to 50 per cent."

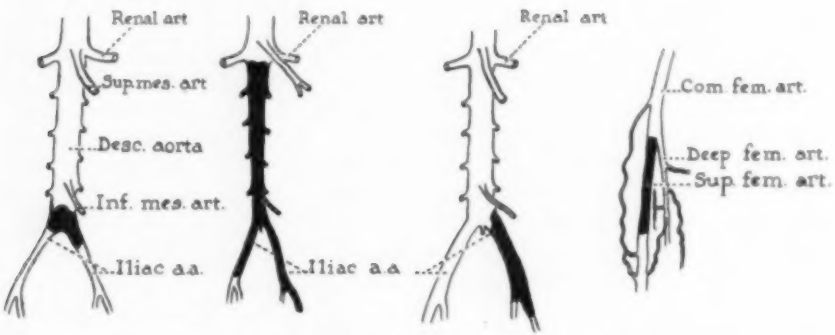
Prognosis

This can briefly be summarized by the old saying, "Once ulcerative colitis, always ulcerative colitis." However, the degree of recovery depends in a large measure on the desire of the individual to recover, on his confidence in his physician, and in his ability to accept his lot and to learn to live with what he has. With a proper frame of mind many patients do well under medical treatment; many others can be helped by surgery. The remaining ones will slowly regress to the point of total incapacity, failure, and death.

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Clini-Clipping



Common sites of thrombotic large vessel occlusion.

Arrhythmias in Acute Myocardial Infarction

ALVIN A. ROSENBERG, M.D., F.A.C.P.
Morristown, New Jersey

Emergency treatment Only those disturbances of rhythm which occur frequently in acute myocardial infarction and are important to correct will be discussed below. It is, of course, generally realized that these arrhythmias often present themselves as grave emergencies, but it is also important to know that a minor disturbance may herald the approach of a major one. Intelligent treatment of a serious arrhythmia may be life saving.

Whenever possible, it is wise to have positive electrocardiographic evidence as to the type of disturbance present. When in doubt as to the diagnosis of a tachycardia or an electrocardiogram is not available, the safest drug to use, if one must be chosen, is quinidine[1] or procaine amide, since it is a well established therapeutic measure for all of the tachycardias, and, if ineffective, the major part of it is excreted within 24 hours and another drug may be tried. The vast majority of urgent cardiac arrhythmias can be managed successfully by proper use of sedation, digitalis glycosides, quinidine, procaine amide, and carotid sinus massage.

Every patient presents a special problem requiring individual consideration and care. A basic principle underlying such therapy is that the clinical severity of any arrhythmia is usually proportional to the disturbance of ventricular rate, whether too rapidly or too slowly. Consequently, the goal of treatment should always be to control the ventricular rate, even though the arrhythmia persists.

1. Ventricular Premature Contractions These are important because too many of them interfere with proper ventricular filling causing a decrease in cardiac output, and, hence, decreased coronary artery filling; also, they may instigate or herald a serious disturbance of rhythm, ventricular tachycardia. If the premature contractions are due to excessive digitalis, it suffices to discontinue it for a few days until the rhythm again becomes regular. When the premature contractions are due to a weakened, irritable myocar-

dium with some evidence of heart failure, it is wise to digitalize the patient, and often the premature contractions will disappear. When the contractions are due primarily to myocardial irritability, one should prescribe quinidine sulfate 0.2 Gm. four times daily[1] or procaine amide 250 mg. four times daily[2] and increase the dose if this amount is inadequate. It is important to decrease the myocardial irritability in order to prevent ventricular tachycardia with its poor prognosis.

2. Paroxysmal Ventricular Tachycardia This is a serious disturbance of rhythm and must be treated vigorously and at the earliest possible moment. Morphine ¼ gr. is first injected intravenously. It is valuable when the patient is apprehensive and also for its effect on the arrhythmia. The sedatives not only calm the patient, but also appear to exert an anti-arrhythmic effect on the heart; thus, in many instances the arrhythmia stops soon after the sedative is given.

If the tachycardia is due to toxic doses of digitalis, it must be stopped and the arrhythmia treated as from any other cause. If the tachycardia is not due to digitalis, and the patient is in congestive heart failure, digitalis may be given without fear of ill effect.[3]

The basic treatment of ventricular tachycardia depends upon the use of quinidine or procaine amide. First, a direct-writing electrocardiograph machine is left attached to the patient and frequent tracings are taken, especially just before another dose of the drug is to be administered. Quinidine is given orally in doses of 0.4 Gm.—0.6 Gm. every 2 hours until reversion to normal rhythm occurs, the ventricular rate is reduced to 100 beats per minute, or until signs of toxicity such as QRS widened by more than 50 percent, ventricular standstill, or ventricular fibrillation occur. Larger doses of quinidine may be necessary before successful reversion is attained, but a dose of 1.0 Gm. every 2 hours should not be exceeded, even if toxic symptoms have not occurred. Procaine amide may be prescribed instead with an initial oral dose of 1.25 Gm followed by 0.75 Gm. in one hour. Further doses of 0.5 Gm. to 1.0 Gm. every 2-4 hours are given as required.[1] When the patient is unable to tolerate oral medication or the situation is grave, parenteral administration is mandatory: quinidine lactate 0.65 Gm., or procaine amide 1-2 Gm. initially and 1 Gm. subsequently, may be given intramuscularly every two hours.

Intravenous injection of quinidine previously was thought advisable only in emergencies, but now can be carried out with relative safety by means of the following procedure: 0.65 Gm. of the lactate is diluted in 50 to 150 cc. of 5 percent glucose and introduced into the vein by the drip method at a rate of 2 ml. per minute. Electrocardiograms should be taken throughout the injection. This method is considerably safer than intramuscular injections because use of the drug may be discontinued when normal rhythm is restored, or when toxic reactions appear.[3] However, the writer prefers procaine amide for intravenous use, since it is safer and possibly more effective. It is given at a rate of 100 mg. every 2 minutes up to a total dose of 1.0 Gm., stopping when the rhythm reverts to normal, when the rate reaches 100 beats per minute, or toxic effects appear on the electrocardiogram. The blood pressure must be taken before each 100 mg. in-

crement is injected, since hypotension of severe degree may occur.

Sometimes combinations or alternation of quinidine, procaine amide, and other drugs are necessary. One patient treated by the writer for ventricular tachycardia with procaine amide intravenously was in shock, congestive heart failure, and apparently moribund. The arrhythmia did not terminate after 1 Gm. of procaine amide was injected intravenously, but did stop after 0.4 Gm. quinidine was given orally in addition, and further recovery was uneventful. Another patient was given quinidine orally and procaine amide intravenously on several successive days, but the tachycardia did not terminate until the latter was given orally. Still another patient had a tachycardia easily stopped on two separate occasions by oral quinidine.

Magnesium sulfate is often tried when quinidine and/or procaine amide fail. Ten cc. of a 20 percent solution is given intravenously, though mostly without success in the writer's experience. Atabrine[R] in doses of 0.4 Gm. every 2 hours has been used successfully in terminating ventricular tachycardia.[4]

3. Complete Heart Block High grade A-V heart block occurs early during acute infarction, is usually transitory and non-recurrent. As a rule the ventricular rate is high enough, over 24 beats per minute, to maintain an adequate circulation and treatment is not necessary. However, if Stokes-Adams seizures due to sudden failure of the idioventricular pacemaker and asystole occur, 0.5 ml. of a 1:1000 solution of epinephrine may be injected intramuscularly, or directly into the heart, though this may precipitate ventricular fibrillation. Because of this danger, Sherf[5] prefers caffeine to epinephrine intracardially. The epinephrine should be repeated if the attack recurs, but it is better to try to prevent further seizures by giving ephedrine, 25 mg. or more if necessary, three to five times daily, or epinephrine, 1:1000 in oil intramuscularly every 12-24 hours. Aminophylline suppositories appear to have some merit in all forms of heart block and 0.5 Gm. may be given in this form every eight hours. Attacks may be prevented by isopropylarterenol (Isuprel[R]) hydrochloride in doses of 10-15 mg. sublingually.[6]

Stokes-Adams seizures may occur when a partial A-V block changes paroxysmally to a complete one, and Sherf[5] recommends that the establishment of complete block by digitalis be attempted. However, if the complete block is believed due to excessive digitalis or digitalis is a contributory factor, this drug should, of course, be withdrawn.

Since these seizures may be due to other arrhythmias interfering with cardiac output, an electrocardiogram should be taken in all cases when possible, and the administration of drugs should be postponed until the mechanism of the attacks has been determined with the aid of the electrocardiogram. Some attacks are due to transitory ventricular tachycardia or fibrillation, which should be treated with quinidine or procaine amide rather than epinephrine. Again, if digitalis is considered contributory to this type of arrhythmia, it should be withdrawn. It is not unusual for a patient to exhibit one mechanism at one time and the other at another time, or even ventricular standstill and tachycardia in rapid suc-

cession. Quinidine is dangerous in ventricular fibrillation associated with complete A-V block, and most unfortunate experiences reported in the literature have occurred in patients with A-V block treated with quinidine. However, if the seizures are due to transitory ventricular fibrillation without A-V block, intravenous quinidine or procaine amide is the drug of choice.

Prinzmetal[6] has described the successful use of corticotropin (ACTH) in cardiac arrest when routine drugs proved ineffective. On two occasions, heart block that had been present constantly for several days and that did not respond to the usual treatment, disappeared promptly after administration of corticotropin. Evidently the A-V node and bundle of His had been edematous and inflamed during the acute stage of infarction. This acute condition that caused the block was suppressed by corticotropin. If the block is due to permanent pathological changes, of course, corticotropin will be of no avail.

When ventricular standstill occurs, the best treatment consists of mechanical stimulation of the heart by punching the chest vigorously with the fist. Also, the mechanical stimulation of the intracardiac needle often suffices to awaken the automaticity of the ventricles.[5]

Zoll[7] has developed a new therapeutic approach to the serious problem of Stokes-Adams seizures. This consists of electric stimulation of the heart by means of an externally applied cardiac pacemaker which terminates ventricular standstill and maintains a regular externally-paced ventricular beat until an adequate, spontaneous rhythm reappears. This apparatus is now available in all the Morris County hospitals, through the generosity of the Morris County Heart Association.

Bellet, Wasserman, and Brody[8] have very recently reported excellent results in treating "cardiac arrest, ventricular standstill during Stokes-Adams seizures, the slow idioventricular rhythm of complete A-V heart block, the slow ventricular rates of partial A-V heart block and sinus bradycardia by the administration of molar and half molar sodium lactate solution" intravenously, and even intracardially. They observe that sodium lactate appears to have marked qualities of increasing cardiac rhythmicity while possessing little or no pressor action. Further confirmation of this work will be necessary before sodium lactate can be generally used. The writer has had no experience with it as yet.

4. Paroxysmal Auricular Fibrillation This arrhythmia is uncommon in the first 24-hour period following acute infarction, but is frequent thereafter during the acute or convalescent stage. It is often recurrent, but usually only a few hours in duration, and almost always asymptomatic. Therefore, it is felt that a rate of 60-100 per minute may be left untreated, but, when the ventricular rate is rapid and symptoms of heart failure or distressing palpitation occur, treatment should be given by parenteral use of ouabain, Cedilanid,[R] or Digoxin[R] intravenously in the usual doses, if rapid digitalization is thought necesary. Digitalis leaf, digitoxin, gitalin, or Digoxin[R] may be given orally if there is no emergency. When the rate is over 150 beats per minute or congestive heart failure is present, the intravenous route should be used. If no

slowing has occurred in 24 hours with adequate dosage, an attempt should be made to convert the fibrillation to normal sinus rhythm with quinidine or procaine amide in gradually increasing dosage to obviate toxic effects. As long as the ventricular rate has been slowed, however, conversion is no emergency, unless emboli, uncontrolled by anticoagulants, have been thrown off by the fibrillating auricles.

If failure is not present, and the ventricular rate not too rapid, an attempt to convert to normal sinus rhythm may be made with quinidine or procaine amide after observation for several hours makes it obvious that spontaneous conversion may not occur. If toxic effects set in before conversion has occurred, one has only to wait 24 hours for most of the quinidine or procaine amide to be excreted, and digitalis may then be given to bring the ventricular rate under control. If digitalis had been used first to slow the rate, but unsuccessfully, one might then use quinidine or procaine amide in an attempt at conversion to normal sinus rhythm; however, it takes much longer to excrete the digitalis and concurrent use of the two drugs has some added danger according to Gold.[1]

The presence of hyperthyroidism, perhaps in a masked form, should be suspected and excluded in every instance of auricular fibrillation. A 60-year old woman under treatment recently for an acute myocardial infarction with congestive heart failure had auricular fibrillation uncontrollable by digitalis and unconvertible because of vomiting and a skin rash due to quinidine. She had been treated with x-ray for hyperthyroidism 20 years ago, and had had no recent basal metabolism test. A radio-active iodine uptake study revealed 51 percent retention in 24 hours by a thyroid gland which was not palpably enlarged, only a nodule at the isthmus being felt on swallowing. It was recommended that radio-active iodine be given for her toxic nodule and that Lugol's solution be given a few days after the treatment in order to more rapidly control the hyperthyroidism.

5. Paroxysmal Auricular Flutter

Since organic heart disease is usually present in patients with auricular flutter, treatment should be directed first towards protection of the ventricular myocardium. If the patient is in shock, the ventricular rate is rapid, or congestive heart failure is present, digitalis is given to convert the flutter to fibrillation and a ventricular rate of 60-80 beats per minute. Once the ventricular rate has been slowed, the emergency no longer exists. Conversion to normal sinus rhythm may be then considered if the heart is relatively small and cardiac function is satisfactory. If conversion does not occur spontaneously on discontinuing digitalis, quinidine should be tried. When using quinidine, frequent electrocardiograms should be taken to prevent errors in management since the ventricular rate may increase during treatment, indicating either conversion to normal sinus rhythm or the disappearance of the A-V block usually present in auricular flutter when the flutter rate has been sufficiently lowered to allow all the auricular impulses to pass through the A-V node to the ventricule. If one unknowingly increases the dose of quinidine when normal sinus rhythm has already appeared, serious toxic effects may be provoked unnecessarily.

6. Paroxysmal Supraventricular Tachycardia This is treated in the same way as in patients without myocardial infarction. However, in this condition it is more important to terminate the arrhythmia because of its adverse effect on cardiac output and coronary filling, and also because of the increased cardiac work it causes.

The patient should first be adequately sedated and given oxygen, if necessary. One should try to end the attack first by carotid pressure or massage except in elderly patients when it may be hazardous. This will stop 25-50 percent of the attacks. The patient is supine with a pillow under the neck and his head turned to one side, the right carotid sinus is located and is quickly and sharply compressed against the underlying cervical vertebrae. Pressure or massage is maintained for 10-20 seconds, with the electrocardiograph machine going or with the stethoscope on the apex of the heart, and is discontinued as soon as the tachycardia ceases. If unsuccessful, the left carotid sinus is compressed or massaged after a rest period. Bilateral carotid pressure is never advisable, especially in patients with myocardial infarction, and some other method of termination is preferred if repeated unilateral carotid massage is unsuccessful. Other procedures such as induction of nausea and vomiting, the Valsalva maneuver, sudden deep respirations, holding the breath, etc., are all better avoided in a patient with an acute myocardial infarction.

Drug therapy should be limited to digitalis glycosides, procaine amide, or quinidine. Other drugs such as Mecholyl,[R] Neosynephrine,[R] apomorphine, epinephrine, etc., should not be used in this often well tolerated condition. Digitalis is the drug of choice, especially if the patient is in congestive failure. If haste is desired, Cedilanid[R] 0.8 - 1.2 mg. may be given intravenously followed by increments of 0.4 mg. every 4 hours until the tachycardia is abolished or minor toxic symptoms have occurred. Carotid sinus pressure often will abolish the tachycardia if done soon after the intravenous administration of digitalis, even though it failed before. Maintenance doses of digitalis are then given to prevent recurrence, or if failure is not present, quinidine may be substituted. However, when there is no need for hurried termination of the tachycardia, oral quinidine is the drug of choice. The first and second doses of quinidine (0.4 Gm.) are given one hour apart and are followed by 0.2 Gm. to 0.4 Gm. every two hours until the attack subsides. Prophylactic doses of 0.2 Gm. to 0.4 Gm. are given one or more times a day in quantities sufficient to prevent further attacks without the appearance of toxic symptoms.

Summary

1. The disturbances of rhythm important in the treatment of acute myocardial infarction have been discussed and methods for their control have been suggested.

2. The importance of electrocardiographic diagnosis of the arrhythmia, before instituting treatment, is stressed.

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Citric Acid Intoxication

A Real Hazard of the Large and Rapid Transfusions of Citrated Blood

EFRAIN OSEJO, M.D.
Washington, D. C.

Fatalities on multiple and large transfusions is the subject of this paper on which I will try to explain the cause of such deaths and how to prevent them if possible. It seems there is more than one cause to the fatal end of these patients submitted to surgery and transfusions of large amounts of stored citrated blood. Sometimes the surgeon's failure to ligate properly a bleeder is the cause of the disaster, but more often it is the citric acid intoxication which, by depressing the ionized calcium level, makes the bleeding uncontrollable and also due to low serum calcium levels produces a secondary hypotension.

The depression of the ionized calcium level can not be the only cause of the uncontrollable bleeding. It should more likely be related to others facts, such as the low titer of prothrombin acceleration factors and the almost total lack of platelets of the routinely collected banked blood.

We have had two cases in which the citric acid intoxication might be claimed as cause of death. One was a white woman, 51, who was admitted to this Hospital on 7/15/1954 with the diagnosis of recurrent squamous carcinoma of the cervix after irradiation therapy. She was also a diabetic, but well controlled by means of diet and insulin before going to surgery. Her blood's chemistry was checked and found good. The x-ray of chest and abdomen did not show any abnormality or metastasis. E.K.G. was within normal limits.

In this condition she was taken to surgery and a radical hysterectomy and pelvic lymphadenectomy were performed from 9.20 a.m. to 8 p.m. In the course of these eleven hours and later until her decease 54 pints of stored blood were given. This means that 27.000 cc. of citrated blood ran through her veins. According to the recorded statement of the surgeon an observation about the failure of the

From Alexandria Hospital, Alexandria, Virginia.

clotting mechanism was made. It was necessary to discontinue the surgery and bring the patient out of shock by forced blood transfusions under pressure and also by using heavy packings of 5 yard rolls to stop the general bleeding from raw surfaces of the pelvis. The same night at 11 p.m. she was taken again to the operating room and reopened in order to control the bleeding. A general ooze throughout the denuded pelvic wall and four areas of major hemorrhage were found. The latter were sutured and Gelfoam gauze was placed on the bleeding points. The pelvis was repacked with heavy gauze rolls. Despite all these procedures the patient passed away next day at 11:30 p.m., 24 hours after the end of the first surgery. There was no autopsy and the recorded cause of death was: Post-operative hemorrhage, Shock and (?) Heart exhaustion.

The other case was another white female 52 years old, admitted to the Hospital on 9/8/1954, for possible recurrence of adenocarcinoma of the urethra, which was operated in July 1953, when excision and plastic repairing of the urethra were done. As in the first case the patient's physical condition was brought up to the optimum, so that during the preop. her anemia was corrected. She was taken to the operating room on 9/13/54. The operation began at 8:30 a.m. and ended at 4 p.m. During that period 9.000 cc. of stored and citrated blood were given to the patient. The operator found a tumor involving the vagina up and down; anteriorly the urinary bladder and the pubic bone were infiltrated; posteriorly the anus was involved and laterally the tumor extended up to the pelvic bone on the right side. A hard palpable node was, also, found in the left groin. A pelvic exenteration was done, and a sigmoid-colostomy with ureter-anastomosis plus appendectomy were performed during the abdominal phase of the procedure. This was followed by the inguino-perineal phase, which consisted of removing the lymphatics in both inguinal regions and removing vagina, rectum and external genitalia. Hemostasis was carefully carried out but, nevertheless, it was necessary to pack the entire pelvis with three 5 yard gauze rolls to stop the generalized ooze which could be controlled only in this manner. During the following days, however, she was always draining a sort of bloody serosity and remained in a hypotensive state, probably because of cardiac failure not arrested by digitalis.

In this case I helped the surgeon as a second assistant and in the final part of the abdominal phase the bleeding was so profuse that even with the suction it was impossible to dry the pelvic cavity. The sponges came out wet with cool and uncoagulated blood, for it came directly from the bottle to the sponges through the saphenous veins. This might explain the poor results obtained despite the enormous amount of blood that was given.

Since these infortunate occurrences I have been studying the medical literature in an effort to find something to help in solving this problem. I found that there have been experimental work and clinical observations reporting the citric acid intoxication as a result of transfusion of citrated blood in large volumes, more often seen nowadays in view of the fact that surgery is developing new methods and bolder techniques every day. Cases with fatal

consequences and symptoms of tetany, requiring repeated intravenous administration of calcium gluconate, have been also reported among erythroblastotic children needing exchange transfusions.

Mellon and Yahn have presented the case of the infant weighing 11 kilograms (24 pounds) who received blood in a period of 15 minutes at such speed that he got 22 milligrams per kilogram per minute. This infant died in generalized tetany with impressive opisthotonos, dyspnea, rigidity and dilated pupils. Why was tetany not observed in the surgical cases we have studied? This fact can be explained because of the profound vascular collapse due to surgical shock and the general anesthesia, either of which might well hide the manifestations of increased nervous and muscular irritability.

The therapy with calcium salts given intravenously has failed many times; so far neither blood pressure has been raised nor blood clotting improved after its administration.

Conclusions

1) The hypotension and blood coagulation difficulty observed in large and rapid transfusions of citrated blood is a complex clinical situation that is increasingly seen in major surgery and in exchange transfusions for erythroblastosis fetalis.

2) The whole syndromic picture can not be explained by the elevated citric acid level and low serum ionized calcium level. The uncontrollable bleeding is probably due to the factors other than the decreased titer of prothrombin accelerator factor and the nearly total lack of platelets of the stored citrated blood.

3) The presence of tetany in children who had been given a transfusion and the absence of it in adults is likely due to the profound vascular collapse and anesthesia under which only the latter ones were.

4) Calcium therapy is many times found not only useless but dangerous when overdosed.

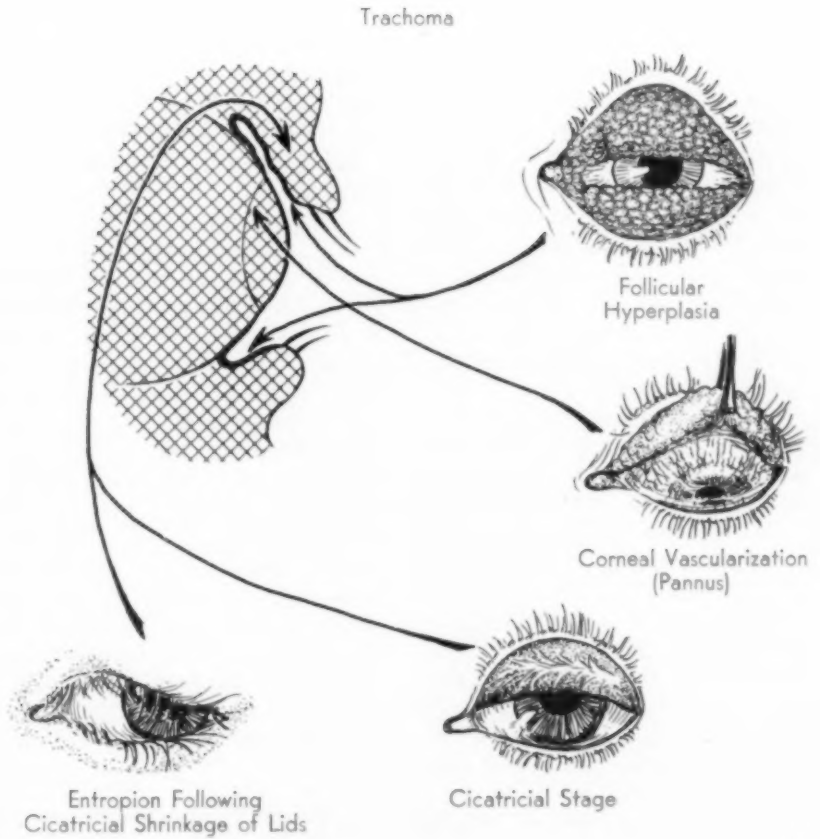
5) The investigation of this matter is necessary until the proper measures for avoiding or bringing the patient out of the citric acid intoxication are discovered. The use of other preserving agents for the blood as ethylene-diamine-tetra-acetic acid disodium has been suggested but until more is known about the destruction and elimination of these agents by the body, they must be considered to be potentially dangerous as binders of calcium. Also decalcified blood in which the serum calcium has been replaced with sodium ion, and clotting thus prevented, is nearly ideal preparation for massive transfusions, whenever the lacking calcium ion is replaced accurately during the infusion. Packed or suspended red blood cells can also be used to advantage when citric acid intoxication is feared.

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Sibley Memorial Hospital,
Washington 2, D.C.

Clini-Clipping



A New Sclerosing Mixture for Varicose Veins

H. I. BIEGELEISEN, M.D.
New York, New York

Many general practitioners still rely on injections for the treatment of varicose veins. Where surgery is selected for the basic treatment periodic checkups are usually required to maintain the cure. This is also an injection procedure. In fact, this disorder is so chronic that life-long observation is needed in most cases regardless which method of treatment is selected primarily.[1] There is thus a lasting and continuing need for efficient sclerosing agents in this disorder.

Present Solutions Present solutions are efficacious but have two disadvantages. First, they are practically all allergenic. Second, as a result of greater irritant power they often produce unsightly and painful thrombotic lumps which subside slowly. There was always a need for a smoothly acting, dependable sclerosing solution. Varisol,* containing a mixture of invert sugar and sodium chloride with added phenylethyl alcohol, had previously met this requirement but was unpopular because of cramps following its use. A new solution was, therefore, proposed to eliminate this nuisance while maintaining the smooth efficiency of the older Varisol mixture. The present report concerns this preparation.

Background of Sclerosing Solutions To understand the problem of sclerosing agents it is necessary to make a brief resume of their background. Few of the original solutions proposed by sclerosing pioneers are in use today. Most of them were discarded with the advent of the fatty acid series of reagents which have been developed in this country during the past twenty years. Beginning with sodium morrhuate, an importation from England, the author[2] pointed the way to the isolation and purification of the fatty acids contained in this material and similar oils. A series of fatty acid chemicals were developed which became popular. These included potassium oleate made from olive oil, Sylnasol derived from the oil in psyllium seeds. Soricin similarly from castor

* Varisol with Procaine, Abbott Laboratories, North Chicago, Illinois.

oil and several synthetic preparations including Monolate and Etalate. The author was identified with the original clinical testing of all these preparations and in his reports[3] stressed the fact that while solutions were improving the ideal sclerosing agent had yet to be developed.

Allergic reactions continued to plague injection treatment. These reactions were often unpredictable although controllable. In addition, in some individuals the solutions produced pigmentation which was cosmetically undesirable.

There was thus a place for a solution like Varisol which evoked allergy only on rare occasions and, in addition, produced smooth thrombi without much pigmentary disturbance. In view of the fact that it depended upon sugar and salt for its sclerotic action, it was felt that the unusual case of allergy that sometimes occurred could only come from the phenylethyl alcohol component.

The older Varisol, however, had a serious drawback. This was the appearance of a painful cramp in the calf muscles or foot occurring within 20 or 30 seconds following injection. Despite the other advantages of the solution the painful character of the spasm restricted its use in many cases. The new formula was designed to counteract this cramping while retaining the advantages of the older preparation.

VARISOL WITH PROCAINE

Invert sugar 30%
Sodium chloride 10%
Phenylethyl alcohol 1%
Propylene glycol 10%
Procaine HCL .45%

The addition of procaine to this mixture was not undertaken without considerable thought. There is an extensive background on the use of procaine for intravascular administration. It has been more extensively used in this fashion because it is probably the least toxic of the local anesthetic agents when injected intravenously. Used in this fashion procaine possesses definite analgesic and antihistaminic properties.

Systemic Effects of Procaine

It is important to understand the action of this anesthetic agent so as not to become unduly alarmed when using it.

Procaine is destroyed within a few minutes after it is injected. This occurs as a result of hydrolysis, most of which takes place in the liver, although some workers claim that the destruction takes place largely in the plasma. The products of this hydrolysis are diethyl amino ethanol and para-aminobenzoic acid. About 2% of procaine is eliminated by the kidneys unchanged, the balance is excreted within twelve hours. Most of its action is, therefore, immediate.

When it is employed by intravenous infusion for general reaction, a series of typical symptoms may be noted. Five minutes after an infusion begins the patient feels a sensation of warmth followed by a flush of the face. Often there is a dryness of the mouth, a peculiar metallic taste, lacrimation, lightheadedness, slight dizziness and dilatation of the pupils.

When a therapeutic dose is exceeded, toxic symptoms develop. The vertigo increases and other symptoms appear. These include tinnitus, apprehension, trembling and numbness. With greater doses the patient may have convulsions, coma and death.

In addition to the nervous system other groups of organs may be involved. Cardiovascular collapse may develop. Respirations may be depressed. Vom-

iting preceded by nausea may ensue. All these, of course, occur only during large intravenous infusions when the warning signals are disregarded and toxic doses are administered. These facts were kept in mind during the clinical study.

Clinical Study One hundred and eleven cases in all were treated with the new mixture containing procaine. A total of 1,123 injections was given. Cases were picked at random and included every type of varicose vein involvement. Ages of patients ranged from 18 to 80. The sizes of veins varied from tiny venules to large protruding saphenous varicosities.

The first reaction studied was the cramping. This was designated as 1 to 3 plus depending upon the severity of the cramp. The typical cramp following the older Varisol injection could thus be classified as 3 plus. This was a severe cramp usually in the calf muscles starting 20 to 30 seconds following injection and lasting approximately 1 minute.

The designation of 1 plus was applied to a cramp of light intensity lasting only about 10 seconds. The cramp marked 2 plus was of moderate degree and lasted 20-30 seconds.

In this series there were 160 instances of 1 plus cramping, an incidence of 14%. Two plus cramping developed in 40 cases or 3%. In other words, about 83% of these injections were completely painless. Almost 17% showed only slight to moderate cramping. This was a marked improvement over the consistent, more painful reaction to the older solution and achieved the primary objective of the study.

A peculiar complication of backache occurred in 18 cases, a little over 1%. It didn't differ markedly from experience with the previous Varisol mixture.

This phenomenon consisted of a low backache resembling renal colic without radiation. Susceptible individuals displayed this alarming but innocent reaction a few minutes following injection. It occurred especially in cases with improved circulation where the varicose venous flow showed a moderate to rapid upward movement. Probably the sclerosing chemical was swept upward into the vena cava to enter the kidney through the renal vein which normally has no valve. The resulting kidney irritation was evidenced by the temporary backache. Apparently the solution was diluted by the caval blood so that it had no action on the kidney tissue.

Allergic Reactions This discussion must begin with an explanation. The states of allergy, idiosyncrasy, sensitivity and toxicity frequently overlap in causing a reaction so that no fine line can be drawn in describing the effects following drug administration. At the present time no one knows why some human beings are allergic and why certain drugs are allergenic. A few definitions seem to be in order.

Allergy may be explained as an alteration in the ability of an individual to react to an agent that is related innunologically. The definition of allergy also varies from physician to physician. Hence, the designation drug allergy does not stand for any sharply delimited condition. To complicate the picture, there is no drug with just a single action as there is no patient with only one reaction.

A drug is considered safe if its range of action is sufficiently wide be-

fore toxic effects are apparent. The term "side effects" relates to annoying symptoms which accompany the salutary effects of a medicinal agent. An idiosyncrasy is a situation in which the side effects are statistically rare.

A sensitive patient is one who develops side effects from unusually small doses. Secondary effects of a drug are those that produce another group of reactions separate and apart from the primary objective. These may be incidental or harmful. The reaction due to toxicity is one in which the effects are dangerous to life itself. Thus, a patient who is sensitive may develop toxicity from small doses.

The true atopic syndrome with smooth muscle spasm, mucous membrane edema, fixed or temporary rash is called by a variety of names. These include allergy, anaphylaxis, specific reaction, serum reaction, specific sensitivity and foreign protein reaction.

The latest thinking holds that true allergic states may result from drug administration, in spite of the fact that the drug may be a non-protein, relatively simple crystalloid substance. This is explained by the hapten theory which states that antigen formation may result from the combination of chemical with human protein to form a new allergen specific for itself.

It is certain that clinically one encounters explosive anaphylactic reactions following the injection of a drug which has been safely used for sometime previously on an individual. Also, one can encounter such a violent reaction with the first introduction of a new drug to a patient. This must be kept in mind with all injection therapy.

In the clinical study at hand there was one episode that was deemed truly allergic. The patient became anxious, showed slight generalized erythema with flushing of the face and reddening of the conjunctiva. Urticaria developed within five minutes and was easily controlled with three to six minims of adrenaline. There was no edema, cough, bronchospasm, cynanosis or cardiovascular collapse. Fortunately, this reaction was mild and responded readily to treatment.

Anyone performing intravascular therapy should be on guard against reactions. An excellent clinical warning may be obtained by observing the face of the patient and at the first sign of flushing to investigate.

The four other reactions are less readily evaluated. In two flushing of the face occurred with injection of 2 cc. Varisol with procaine. No other symptoms occurred and prompt relief was obtained after administration of 4 minims of adrenaline.

In view of the fact that the normal systemic response to intravenous infusion of procaine is flushing of the face, these two cases were labelled as possible sensitivity reactions.

Further testing was performed as follows: First, intradermal wheals were raised on the forearms of these two individuals using 2% procaine solution. No local erythema or systemic reactions developed. They were, therefore, not judged to be markedly allergic, at least not enough to react with these small doses. They were, however, sensitive to the 2 cc. intravenous injection of Varisol containing .45% procaine HCL.

A second test was performed to rule out reaction to phenylethyl alcohol. One cc. of 1% of this reagent was injected in each case with no systemic reaction.

This tended to confirm the suspicion of procaine sensitivity.

The last two reactions observed consisted of pains in the large joints, one case with facial flushing. They also obtained quick relief with small amounts of adrenaline. These were interpreted as serum type reactions to procaine. They were not tested further. No passive transfer tests were performed although the presence of circulating antibodies could have been established by this means. Clinically the exact allergic diagnosis is not important. Any reaction must be dealt with quickly by the usual methods.

Results This study points up the important fact that allergy to small doses of procaine as used intravenously in this series is rare and mild. Reaction to phenylethyl alcohol occurs even more rarely. Allergic reaction to the new Varisol occurs with less frequency and is less explosive than with routine fatty acid solutions like sodium morrhuate. This modified sclerosing agent is, therefore, a safe solution for varicose veins.

From the cosmetic point of view it has no equal. It is an ideal solution for dilated venules and larger capillaries. There is little tendency to pigmentation and the thromboses are flatter and disappear sooner than with any other sclerosing agent. For the physician who treats young women who demand clear legs, this reagent is indispensable. Now that the painful cramp has been virtually eliminated its range of usefulness should be markedly increased.

Summary

1. The new Varisol mixture containing .45% procaine HCL was tested in a series of 111 cases in which 1,123 injections were given.

2. Cramping which used to complicate this type of solution was completely eliminated in 83% of injections. Seventeen per cent showed slight to moderate cramping. There were no severe cramps.

3. In this series there was only one typical moderate allergic reaction easily controlled.

4. Four cases of drug sensitivity were encountered, two of which are probable allergies.

5. There is no increased risk of allergy with this solution.

6. The new Varisol is a dependable sclerosing agent especially useful where cosmetic results are important.

7. The virtual elimination of painful cramps extends the scope of this clinically proven sclerosing agent.

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133 East 58th Street

The Burn Patient

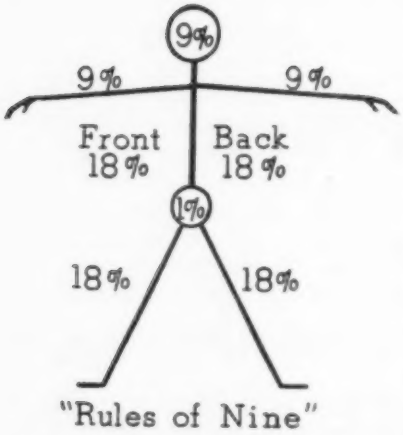
A Comprehensive Plan of Treatment

MERTON L. GRISWOLD, JR., M.D.
Plainfield, N. J.

One may be surprised to learn that the National Safety Council considers burns to be the third most common cause of accidental death. Motor vehicles and accidents due to falling in the home, take precedence. A long term disability for the survivor of the deep extensive burn is the usual course of events and the average community hospital is beset with the problem of bed space for him. This paper is concerned mainly with a program which can be set up for treatment of the burn patient to cut down the hospital days and take cognizance of a chronic nursing shortage. Our experience is based on 108 in-patient burns who have been hospitalized between 1952 and 1955.

First Aid The first person who comes to the assistance of the burn patient really begins the treatment. If the burn seems to be of sufficient severity to warrant moving to a hospital, it must be determined how the patient is to be transported. The most accessible covering usually is a clean sheet or if the area is a small one a towel can be used. Blankets can then be placed over the sheet. For minor burns, vaseline gauze can be used for covering after the area has been sponged with warm soapy water. The extent of the burn surface may be difficult to evaluate immediately, but erythema, blistering or a dead white appearance to the skin manifests a severe burn within minutes after the accident.

Initial Hospital Treatment When the patient arrives at the hospital we are concerned with his general condition and the treatment of the surface burn is really a secondary matter. It must be estimated how extensive the burn is and what percentage is deep burn so that one will know how much primary shock is to be expected. The "Rules of Nine" (Fig. I) is a simple method of figuring the amount of burn surface. Primary shock is manifested by cyanosis, rapid pulse, low blood pressure, chill or disorientation. If there appears to be any possibility of circulatory collapse, intravenous fluids are indicated. If intravenous fluid is to be given at all it is well to plan for a continuous intake for at least 48 hours. The internal saphenous vein at the ankle is easily accessible and we like to insert the polyethylene catheter through a routine cutdown procedure. Plasma is the time honored replacement fluid, but we believe that we have obtained better results with lactated Ringer's Solution (Hartman's Solution) as suggested by



"Rules of Nine" for measuring burn surface area.

Moyer.[1] The amount of fluid lost into the tissue spaces is the important factor. Davis[2] has reported that plasma expanders and plasma disappear so rapidly from the circulating blood volume that they support the intravascular volume for only a short period. The intake of fluid for a patient with a 20% surface burn is somewhere in the vicinity of 6,000 to 8,000 cc. in a 24 hour period. The patient is usually thirsty and this gives us an opportunity to give him additional salt. A pitcher of buffered salt solution is kept at the bedside which can be readily made by dissolving 4 tablets of salt, 1 gram each, and 6 sodium bicarbonate, .3 grams each, in a quart of iced water. A few drops of lemon juice adds to the palatability of the solution and is usually well tolerated by the patient. Circulatory collapse is always possible for at least 72 hours.

A sudden rise in temperature or disorientation are signals that the fluid intake is not sufficient.

We have not found it necessary to make involved laboratory studies, but often use the amount of venous return to the heart as an index of blood volume and tissue dehydration. If the hand or the foot is lowered and the veins are allowed to fill they should remain filled when the extremities are raised to the level of the right auricle. If they collapse at the level of the right auricle, there is probably insufficient circulatory pressure. If the extremities are raised above the level of the auricle and still remain distended it is possible that the condition is one of congestion and no fluid is indicated. Children are especially amenable to sudden changes in circulatory volume and must be watched closely.

It is our belief that our mortality in the first week has usually been due to circulatory imbalance.

ACTH, Cortisone, etc. The use of cortisone or ACTH has not, in our experience, been of any assistance in the regrowth of epithelium. They may possibly be of value in the shock phase. Anti-histamines have been used in this series occasionally, but further trial is necessary to determine if they are of value.

Treatment of the Burn Surfaces There has been considerable discussion in the literature concerning the value of treating the burn as an open wound or enclosing it with some form of dressing. For body circumferential burns, some dressing is necessary for the patient to be recumbent on. If the burns are not full thickness open treatment is practical, but if grafting is eventually indicated the slough removal is hastened by some type of macerating dressing. We have not used grease gauze as a burn dressing. It has been theorized that pressure dressings prevent serum

loss but this has not worked out in practice. We feel that in the case of a deep burn, our efforts should be directed toward removing the burn slough inasmuch as no grafts can be applied until a granulating bed has been established. Wet dressings, which can be applied readily with saline moistened towels covered with pliofilm from a discarded oxygen tent, are applied over the burned areas and changed twice a day, giving the patient more comfort than any other surface covering. Experimental evidence by King, et al,[3] Price, et al,[4] indicates that immediate cooling of the burned areas by wet compresses decreases local edema, capillary permeability and mortality in dogs. A word of caution should here be injected concerning the application of dressings to the hand. Dressings applied to the fingers must allow for swelling, as gangrene will result if the dressings become dry and don't allow for swelling of the fingers. A loose saline drenched towel is wrapped around the hand so that movement of the fingers is possible. Limbs should be elevated to allow drainage from the extremities. A pillow or some type of sling can be utilized for this purpose.

Sedation Initially, morphine must be used with caution, as absorption from the dilated capillary bed is unreliable and if more than one dose is given the effect may become cumulative with resultant coma. If more than one dose of sedation is given we recommend the intravenous route. Demerol, 40 mgm, is a suggested intravenous dose for a person weighing about 130 lbs.

Laboratory Data The intake and output must be watched carefully in the first 48 hours. The urine output is usually scanty with a high specific gravity. We expect this inasmuch as there is a loss of circulating blood volume, which is no contraindication to the administration of fluids. The hematocrit, red cell count and hemoglobin are elevated, and if laboratory facilities are limited we consider the hemoglobin as the best index. After the fourth day an anemia may be present which will call for additional blood replacement.

Pre-Operative Preparation As soon as it has been determined that we are faced with a full thickness skin loss, we encourage the demarcation of the slough by the use of the wet towels as described in a previous paragraph. The daily change of the towels can readily be done by the nursing staff and with each change some epithelial debris comes away. Loose segments of skin are removed daily at the bedside with scissors. It is usually not necessary to subject the patient to operative trauma by removing him to the Operating Room for debridement. The use of saline alone as a debriding agent is frequently associated with contamination from the Bacillus Pyocyaneus manifested by a green stain. When this contamination becomes evident a switch can be made to a broad spectrum antibiotic such as chlortetracycline (1 mg. to 1 cc. water). This lessens the odor and the amount of purulent discharge. It can readily be made in the pharmacy and is not expensive. Our average target date for securing a granulating surface suitable for grafting usually is between the 15th and 18th post burn day. We do not hesitate to graft even though all the slough has not been removed.

At the time of the first graft we customarily make an effort to remove the remaining slough and graft at the

same time whatever granulating areas are ready.

Skin Replacement The removal of skin from the donor areas can be done by any of several techniques. We have had the least technical difficulties with the half metal drum type, which uses a tape and glue for adhesion. This will cut approximately 28 sq. in. without change of tape and the plastic backing on the tape facilitates cutting the skin into smaller pieces. If the denuded area is large, the use of postage stamp size grafts allows skin growth from a larger periphery than when the skin is put on in large pieces. In the burn patient who has a greater than 50% surface loss, some form of homografting must be considered. Homografts, at best, will last only 3 to 5 weeks and they must be replaced, which adds to the operating hours spent on one patient. By beginning early to graft and re-using the donor sites, we have in some instances been able to obviate the need of homografts. Brown[5] has suggested the use of post mortem homografts, but we have found them difficult to get, due to technicalities in post mortem permissions, etc. We have also used fresh amniotic membranes as suggested by Douglas[6] but have never been satisfied that there was a "take." If the donor areas are to be re-used, it is essential to cut the grafts as thin as possible. With the dermatome, we set the machine at 10 or 12 one thousandths of an inch and then the donor sites can be re-used in about 10 days. As stated above the use of the postage stamp size grafts on areas such as the chest, where there is constant respiratory movement, is especially advantageous, because if the graft is dislodged, the loss of a small one is not of great moment. With the tape backing on the graft we do not usually sew on the grafts unless it is a small area. The grafts may be fixed in place with sterilized strips of elastoplast or by laying on rolls of multi thickness gauze bandage which has been soaked in an antibiotic solution. Pliofilm waterproofing is placed on the top and removed at 6 hour intervals to allow moistening of the gauze. The donor areas are easily dressed with plastic strip dressings which are attached to a thin layer of cotton. They absorb the blood well and don't adhere to the raw surface when they are removed 4 to 5 days later.

The dressings of the recipient area are removed on about the 4th P. O. day. Whether the tape backing of the grafts is peeled off at this time is not particularly material as the grafts will grow whether the backing is removed or not. It might be noted that for the circumferential burn the revolving bed based on the principle of the Bradford frame, facilitates change of dressings and post operative nursing care. It also reduces the instance of decubitus ulcers, which may be a problem for the nursing staff unless complete turning of the patient can be done readily at intervals of 3 to 5 hours.

Anesthesia Endotracheal anesthesia has been used in the majority of our cases. The patient with a chest or neck burn may present some difficulty in passing an endotracheal tube due to an inability to open the mouth and dorsiflex the head. Pressure on the trachea, applied externally, often facilitates the passage of the tube. The patient with neck burns is also liable to glottic spasm. On one occasion, during passage of the endotracheal tube, respirations ceased and it was necessary to do

a tracheostomy. This is not a complication to be wished for as the opening had to be made through edematous tissue. There was considerable seepage post operatively into the tracheal fistula which made frequent aspiration necessary. However, after 10 days the tube was removed and the opening closed without further complications. A split graft was placed over the suprasternal space.

Following the initial extensive grafting, we like to do smaller areas under local anesthesia. In some patients, as many as three dermatome drums of skin can be removed by this method. Procaine infiltration of the donor areas is well tolerated and the patient loses no fluid or food intake by mouth, which is a factor in their customary state of debilitation.

Complications If the pelvic area is involved, a Foley catheter in the bladder prevents contamination of the wound surface and allows accurate measurement of the urine.

For contractures of the knee or elbows, padded basswood splints, covered with waterproofing material, are applied. They can be held in place with elastic bandage. A board at the foot of the bed gives the patient something to push against and prevents foot drop for the lower extremity burns. The use of tub baths in the rehabilitation period facilitates the movements of the extremities.

Wound Organisms The commonest bacterial contaminant is Staphylococcus aureus, but the hemolytic forms of the Staphylococcus or Streptococcus may be present and the older the wound the more diffuse is the flora of organisms. The appearance of the wound is a better guide than swab culture in ascertaining the optimum time for grafting. Bacterial contamination in the early stages of slough removal is not great and the reasonably clean granulating surface will usually take the graft readily. Furthermore it is advantageous to expose the granulating surface to the open air at regular periods. The drying of the wound is usually painful but we believe that the change from a moist medium to a dry one helps to destroy the anerobic organisms. We know that 80% of the bacterial organism consists of water and without moisture they cannot flourish.

Systemic antibiotics are not used unless there are complications elsewhere such as pneumonia, cystitis, etc. It does not seem desirable to run the risk of sensitizing a patient by the large scale use of systemic antibiotics, because we doubt whether they are of any value in controlling the surface infection.

Mortality We have lost 5 patients, which is a percentage mortality of 4.63%. Four of these have been between the ages of 68 and 89 years, and died in the second post burn week. The fifth patient was an 11-year-old boy with a 42% surface burn, whom we feel was lost on the 2nd post burn day because of inadequate fluid intake.

Prevent Burns *Most Burns Should Never Have Happened.*

An analysis of our series reveals that adults smoking in bed, and children playing with matches or burning leaves, were predominant causes. Not much attention is paid to the factors of combustion in wearing apparel. In general, wool, nylon and orlon are fire-resistant, while cotton, rayon and linen are quite inflammable.

Summary

A regimen for the treatment of burns has been presented which has for its purpose the replacement of the damaged skin as soon as possible. Our efforts have also been directed towards the conservation of hospital personnel manpower, which is an important factor in the treatment of the deep burn.

947 Park Avenue

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Chronic Obstructive Pulmonary Emphysema

ABRAHAM SUNSHINE, M.D.
New York, New York

Pulmonary emphysema is a condition in which pulmonary alveoli are abnormally dilated, with overdistension, frequently attenuation and rupture of the alveolar walls.[25,27] Pulmonary emphysema can be further classified[25] as follows:

A. Acute emphysema
   1. Acute physiologic emphysema
   2. Bullous emphysema; air cysts of lung

B. Chronic emphysema
   1. Obstructive emphysema
   2. Bullous emphysema; air cysts of lung
   3. Nonobstructive (senile) emphysema
   4. Localized (Compensatory) emphysema

A. Acute emphysema

1. Acute physiologic emphysema occurs during strenuous physical exertion, especially in people in poor physical training, and manifests itself by hyperinflation of the lungs.

2. Acute bullous emphysema refers to hyperinflation of the lung that occurs in various pathologic conditions. As for example in whooping cough or an acute attack of bronchial asthma.

B. Chronic emphysema

1. Chronic obstructive emphysema is characterized by hyperinflation of the lung, loss of elastic tissue, and dissolution of the alveolar wall. However, there is little correlation between the anatomic extent of the disease and the clinical severity. Therefore the physiologic disturbances which result, from the standpoint of alterations in lung volumes, mechanics of breathing, distribution of air and gas in the lungs, and gas exchange have to be studied. This condition can occur as a primary disorder or as a complication of other major pulmonary diseases as fibrosis.

2. Bullous emphysema may be single or multiple. In general this condition conforms to one of three types. A) Bullae with free bronchial communication, the remainder of the lung being normal. B) Solitary air cyst with narrowed bronchial communication, allowing air passage only inward during inspiration; the remainder of the lungs being normal. These form tension cysts. C) Bullae of various sizes, with the remainder of the lung emphysematous. This is only

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an anatomic variant of chronic obstructive emphysema.

3. Nonobstructive senile emphysema is part of the normal aging process in which pulmonary tissue loses elasticity and resilience commensurate with similar changes in other tissues.

4. Localized compensatory emphysema occurs adjacent to regions of atelectasis or fibrosis or in lungs subjected to anatomic distortion.

In this paper we will be concerned with chronic obstructive emphysema and will use the term emphysema to apply to this condition.

Etiology[8,18,23,24,25] The etiology of chronic pulmonary emphysema is unknown. However, some of the accepted theories will be presented.

Christie in 1944 suggested that the effects of cough and bronchial spasm on the lung are of primary importance in producing emphysema. During cough pressure changes cause stress and strain on alveolar walls. He stated that almost all patients with emphysema suffer from either asthma or chronic bronchitis.

McIlroy and Christie state that it is possible to explain some of the disturbances in pulmonary function in emphysema on the basis of an increase in viscous resistance. Recent work on the elastic properties of biological materials suggests that the lungs are a visco-elastic system. A visco-elastic system is a combination of a viscous system in which the response to a force depends on the time the force is applied and an elastic system in which the response depends on the magnitude of the force applied. Reduction in maximal breathing capacity may in part be due to the patient's inability to increase the rate and depth of breathing without greatly increasing the work against viscous resistance.

Gordon suggests the theory of compensatory distension. If a considerable proportion of the alveoli of lungs is slowly destroyed by disease, the remaining alveoli will become overdistended. Because of this overdistension they lose their elasticity and emphysema develops. Bronchiolar obstruction can cause emphysema. The constricted bronchioles will receive less air. Thus normal alveoli will become overdistended and overstretched leading to loss of elasticity and pulmonary emphysema.

Drs. Comroe and Barach noted that virus pneumonia may precede the sudden onset of pulmonary emphysema.

Pathology[8] The emphysematous lung is voluminous and does not collapse when the chest is opened. Blebs and bullae protrude from the surface. On section the lung is relatively dry and bloodless. The dilated alveoli form a fine honeycombed appearance. There is swelling and inflammation of the bronchiolar mucous membrane, occasionally with exudate. The bronchial musculature is in most instances hypertrophied but sometimes atrophic.

Pathologic Physiology[12,19,27]

Lung Volumes Among the characteristic findings in chronic pulmonary emphysema are alterations in total lung capacity, residual volume and vital capacity. These changes are of considerable diagnostic importance. In addition certain pathologic changes which have important effects upon the function of the lungs are reflected in these alterations of lung volumes.

Before proceeding further let us define the terminology used. Vital capacity is the maximal volume of gas that can be expelled from the lungs by forceful effort following a maximal inspiration. Residual volume is the vol-

ume of gas remaining in the lungs at the end of maximal expiration. Total lung capacity is the sum of vital capacity and residual volume.

The lungs of patients with emphysema are in a state of chronic hyperinflation which can be detected on x-ray or clinically. As a result the total lung volume may become larger than normal, but more striking is the increase in the ratio of the residual volume to the total lung capacity, a reflection of the inability to empty the lungs upon forced expiration. These alterations are the result of two important pathological features. First the loss of elastic tissue of the lung with a shift of resting position toward the position of hyperinflation. Secondly there is widespread bronchiolar narrowing as a result of secretions, mucosal edema and bronchospasm.

Mechanics of Breathing Emphysema disturbs the mechanics of breathing. The severity of the disturbance varies from patient to patient. There is a reduction in normally predominant diaphragmatic and lower costal action in ventilation and an increased utilization of upper costal portion of the chest and accessory muscles of respiration. In some instances the lower ribs are actually retracted at the beginning of inspiration by the contraction of the diaphragm. Incoordination of the muscles of respiration is not uncommon. Through use of the recording spirometer these changes are easily brought out. The features to be noted are incoordination of respiratory movements, expiratory prolongation, air trapping on successive deep breaths and execution of the maximal breathing capacity in the extreme inspiratory position. Maximum breathing capacity is reduced.

The most important end result of these changes is the reduction of the breathing reserve which results in dyspnea. The occurrence of this symptom appears to depend not upon the amount of ventilatory work being done, i.e., the actual ventilation, but upon the relationship of this ventilation to what the chest bellows is capable of doing, i.e., the ventilatory capacity. This relationship is conveniently expressed by the concept of breathing reserve, which is the difference between the ventilatory capacity, measured as the maximum breathing capacity, and the actual ventilation under consideration. Dyspnea in pulmonary emphysema is due chiefly to reduction in the ventilatory capacity because any hyperventilation which occurs is slight.

Distribution of Air and Blood in the Lungs—Gas Exchange The factors involved in pulmonary gas exchange can be divided into two main categories: those concerned with the distribution of inhaled air and mixed venous blood to the alveoli, and those concerned with the diffusion of oxygen from alveolar air to capillary blood. All of these factors are affected by emphysema. Inhaled air is unevenly distributed to the alveoli. This occurs as a result of unequal bronchial or bronchiolar narrowing, local variations in distensibility due to non-homogeneous loss of elasticity in various portions of the lung, and the presence of air cysts, blebs and bullae poorly communicating with the tracheobronchial tree. Recently developed injection studies of pulmonary blood vessels and tracheobronchial tree suggest that circulation is uneven in emphysema.

Ventilation of alveoli that are poorly perfused with blood is inefficient ventilation, and results in CO_2 retention.

The blood that perfuses these alveoli becomes fully oxygenated and depleted of CO_2 but the quantity of blood flow is slight and a greater than normal burden falls upon other alveoli. Since little O_2 is removed from or CO_2 added to air ventilating these alveoli, this ventilation is similar to ventilation of the anatomic dead space and may be termed dead space ventilation. Adequate CO_2 elimination can occur in the presence of excessive dead space like ventilation only when the normally perfused alveoli are hyperventilated. If hyperventilation of these alveoli does not occur, CO_2 retention will take place. Accordingly the effect of increased dead space like ventilation upon gas exchange is a tendency toward CO_2 retention.

Perfusion of alveoli that are poorly ventilated results in arterial anoxia as well as a tendency to CO_2 retention. This is due to the fact that not enough oxygen is added to or CO_2 removed from these alveoli by the process of ventilation.

Thus a certain amount of slightly aerated or not aerated venous blood combines with fully aerated capillary blood and has the effect of venous admixture upon the composition of arterial blood causing anoxia and carbon dioxide retention. Carbon dioxide retention may not be realized if sufficient hyperventilation occurs of remaining well perfused well ventilated alveoli. Arterial anoxia however cannot be corrected by hyperventilation of normal alveoli to any significant degree.

In emphysema the oxygen diffusion capacity across the alveolar capillary membrane is often found to be reduced. This is not due to any change in the character of the alveolar capillary membrane but to a reduction in the total surface area provided by the pulmonary capillary bed.

Influence of Gas Exchange upon the Nervous Regulation of Ventilation Normally the medullary respiratory center is extremely sensitive to an increase in arterial carbon dioxide tension and responds with an increase in respiratory stimulus. This is termed the centrogenic drive. The carotid and aortic bodies are sensitive to anoxia and exert an effect on ventilation. This is known as the chemoreflex drive. In as much as the centrogenic drive is normally the stronger one, the hyperventilation at rest observed in most cases of pulmonary emphysema is due chiefly to an increased centrogenic drive despite the possible presence of mild anoxia.

When ventilatory capacity is so inadequate as to be unable to maintain sufficient compensatory hyperventilation under an increase in either the centrogenic or chemoreflex drive, true carbon dioxide retention occurs and the partial pressure of this gas in arterial blood increases. An increase in arterial pCO_2, if sustained, is regularly associated with a compensatory increase in alkaline reserve. The increase in the buffering capacity of the plasma has the unfavorable effect of decreasing the sensitivity of the respiratory center to the carbon dioxide stimulus. With the decrease in sensitivity of the medullary center to carbon dioxide, ventilation is still further reduced and more carbon dioxide retention is promoted. Finally a stage is reached wherein the major portion of the respiratory stimulus is a result of arterial anoxia. At this stage hyperventilation is usually no longer observed. The failure of severe anoxia to induce hyperventilation is not clear.

Heart and Circulation Before dis-

cussing the effects of emphysema on pulmonary circulation we shall review the essential characteristics of this system. The normal pulmonary circulation operates as a low pressure system. The low resistance to blood flow is a manifestation of the marked distensibility of the pulmonary arteries and its main branches and of the large capacity of the smaller vessels. In normal individuals when pulmonary blood flow increases up to three fold, there is no increase in pulmonary artery pressure.

The pulmonary circulatory changes in chronic emphysema can be related to both an anatomic alteration of the pulmonary vascular bed and to anoxia. The disease process by thinning or rupture of alveolar septa and development of bullae may reduce the number, caliber and expansibility of the smaller vascular channels. Besides the mechanical factors, anoxia has been shown to act directly on the tone of the pulmonary arteries and arterioles to produce pulmonary arterial hypertension.

As anoxia increases in patients with pulmonary emphysema there is a rise in pulmonary pressure, total blood volume and red cell volume and cardiac output. The polycythemia is characterized by an increase in hypochromic red blood cells. Thus the hematocrit is high while the hemoglobin determinations may be normal. The marked degree of pulmonary hypertension seen in emphysema patients with chronic cor pulmonale in failure is reversible and results mainly from anoxia and not mechanical factors. With treatment anoxia is diminished and there is marked reduction in pulmonary artery pressure.

Chronic anoxia, with its sequela of arterial or arteriolar constriction, polycythemia, hypervolemia and increased cardiac output, perpetuates a vicious cycle of physiologic abnormalities. Each of these sequelae in turn affects the other. Hypervolemia increases the volume of blood in the venous system and results in an increased stroke volume and output. It limits further distension of the pulmonary vascular bed. The increased blood flow and reduced vascular capacity tends to maintain a high pulmonary artery pressure. With an increase in red blood cells, blood viscosity is increased and this enhances pulmonary hypertension. It is at this stage that right ventricular hypertrophy becomes manifest. The next phase is decompensation. The precipitating factor of right ventricular decompensation is not always known but it seems to be a bout of acute anoxia. This may be the result of pulmonary infection or an episode of bronchiolar obstruction.

Cardiac failure is characterized by incomplete emptying of the right ventricle and thus the stroke volume is reduced from a previous higher level. The state of the circulation just preceding the failure of the right ventricle explains the paradox of high cardiac output in the presence of failure.

It should be emphasized that the circulatory complications of emphysema are reversible. Observations of cardiopulmonary function in patients with chronic cor pulmonale who had recovered from right heart failure differed very little from those made in patients with severe emphysema and anoxia who never had evidence of chronic cor pulmonale.

Physiologic Classification of Emphysema[6,19,27] In emphysematous patients, physiological disturbances described above may be present to a

greater or lesser degree and wide variation in clinical pattern results. There is a poor correlation between the patient's symptomatology and the physical or pathologic findings. In addition chronic pulmonary emphysema may not occur as a primary disorder but may also be a complication of other major pulmonary diseases as silicosis and other fibroses. Therefore it is essential to study patients from a physiologic standpoint to be able to evaluate the degree of emphysema present and the therapy that is indicated. Such a classification has been proposed by Baldwin, Cournand and Richards based on the presence or absence of significant arterial anoxia and hypercapnia after exercise and the presence or absence of clinical involvement of the heart by this disease.

Group I In this group are placed emphysematous patients who are found to have an arterial oxygen saturation above 92% following the standard exercise test. There is no retention of carbon dioxide. These patients have as their major disturbance excessive dead space-like ventilation. However adequate but inefficient gas exchange is maintained by means of compensatory hyperventilation. The results of the pulmonary function studies in this group revealed a moderate increase in total lung capacity and in the ratio of residual volume to total lung capacity. The maximum breathing capacity was only moderately reduced and resting ventilation was abnormally large. The major disability of this group is ventilatory insufficiency, i.e. reduction in breathing reserve to such an extent as to limit physical activity and cause dyspnea.

Groups 2 and 3 In group 2 are placed those patients with an oxygen saturation in the arterial blood below 92% and carbon dioxide tension below 43mm. Hg. following the standard exercise test, while in group 3 are those with an arterial oxygen saturation below 92% and a carbon dioxide tension above 43mm. Hg. following the standard exercise test. The two groups are discussed together since the pattern of pulmonary dysfunction is essentially the same in both. In addition to ventilatory insufficiency these two groups suffer from alveolar-respiratory insufficiency, i.e. ineffective gas exchange of varying severity. Physiologic studies revealed a moderate increase in total lung capacity with a marked increase in the ratio of residual volume to total capacity. The maximum breathing capacity was reduced to such an extent that breathing reserve on standard exercise had reached the vanishing point. Carbon dioxide retention is a result of the larger size of the physiologic dead space and the increase in venous admixture. There is an absence of compensatory hyperventilation because of the marked reduction in ventilatory capacity. There is a low oxygen diffusing capacity as a result of the reduction in the area of alveolar-capillary interface rather than thickening of the membrane.

Group 4 In this group are those patients who have right sided heart failure in addition to pulmonary insufficiency previously described. Physiologic studies revealed the total lung capacity to be reduced with a marked increase in the ratio of the residual volume to total lung capacity. Maximum breathing capacity was extremely small. Arterial oxygen saturation was very low at rest and on very mild exercise fell even lower. Arterial CO_2 was high.

There was extreme reduction in ventilatory capacity.

Diagnosis[8,9,10,11,13,15,16,19,25,28]

History The most common symptom of chronic pulmonary emphysema is exertional dyspnea. The onset is usually a slow and gradual one. Occasionally one obtains the history of rapid onset of dyspnea following pneumonia. Chronic cough is another almost universal complaint, worse during the night and early morning and productive of a scant sputum. Wheezing may be present. These symptoms are all aggravated by respiratory infections and are worse during the winter months. The acute respiratory infection is apparent to both patient and physician. However patients can have infections that increase pulmonary insufficiency without any febrile response or leukocytosis. Anorexia, headache and blurred vision may be a manifestation of anoxia and hypercapnia.

Physical Examination The physical examination is variable in pulmonary emphysema. The upper chest is raised anteriorly and the lower chest narrow. Dorsal kyphosis and the so-called barrel shaped chest may or may not be present. Chest movement is chiefly upper costal. The accessory muscles of respiration usually contract in an effort to elevate the thorax. Simultaneously the abdomen may be retracted in a paradoxical fashion demonstrating the incoordination of respiration. The diaphragm is flattened and in some instances its contraction causes a retraction of the lower ribs on inspiration.

The percussion note is hyperresonant and fremitus decreased. The breath sounds may be increased at the hila but diminished elsewhere. Sibilant and sonorous rhonchi and expiratory prolongation with wheezing may be present. The heart sounds are distant. Clubbing of the fingers and toes is present if there is associated bronchiectasis.

Anoxia can be present in the absence of cyanosis. Comroe demonstrated the inability to detect the presence of cyanosis until the oxygen saturation fell below 80%. Anoxia can result in an increased cerebrospinal fluid pressure with the development of papilloedema. Anoxia can also result in peculiar behavior patterns.

Patients with chronic emphysema may go on to develop cor pulmonale. At this time they will show marked dyspnea and orthopnea. There will be a marked accentuation of the second pulmonic heart sound. Electrocardiographs will usually show evidence of right ventricular hypertrophy. Arrhythmias are very rare. Hydrothorax due to heart failure is not seen in uncomplicated cor pulmonale.

Laboratory Data *Hematocrit* determinations are useful as there is a relationship between arterial anoxia and the red cell volume. It should be noted that the red cells are hypochromic and therefore while hematocrit volumes are high, hemoglobin determinations are normal or low. In a group of patients with mild emphysema the hematocrit averaged 39%. In more severe cases 49% and in the presence of cor pulmonale 65%. The hematocrit cannot be relied upon to evaluate the degree of anoxia but it is helpful in following the progress of a patient.

X-Ray—a roentgenogram of the chest shows over aerated lung fields, sometimes individual bullae, flattened and low diaphragms. Fluoroscopy is very helpful in demonstrating the low and

relatively immobile position of the diaphragms. In the presence of cor pulmonale one will find evidence of right ventricular dilatation and hypertrophy and dilatation of the pulmonary artery. The latter finding is particularly seen in the right oblique view.

Pulmonary Function Studies. The history, physical examination, x-ray and fluoroscopic studies are helpful in making the diagnosis of pulmonary emphysema. In order to confirm the diagnosis and determine proper therapy certain pulmonary functions are indicated. From the many pulmonary function tests available, an attempt has been made to select the simplest tests that would be helpful in evaluating a patient with emphysema.

Spirograms — Spirographic tracings of emphysema patients are characteristic and can be made on small recording spirometers. Normally air flow is rapid and results in steep inspiratory and expiratory slopes. In emphysema the rate of air flow is slowed particularly during the latter half of expiration. Marked air trapping is noted which is a result of the progressive reduction in air expelled after successive deep breaths. Incoordination of respiratory movements is indicated by irregularities in the tracing.

Maximal Breathing Capacity (MBC) This is defined as the maximal volume of gas that can be breathed per minute. The test is performed by having the patient breathe as rapidly and as deeply as possible for about 15 seconds. The volume of gas expired is measured in liters per minute and compared with normal standards. In emphysema the maximal breathing capacity is low. The rise in MBC after the administration of bronchodilators indicates the degree of reversible bronchial obstruction.

Arterial Blood Studies One of the most essential aids in evaluating pulmonary function is a determination of arterial oxygen saturation and CO_2 tension. Analysis of peripheral venous blood is not helpful because the O_2 and CO_2 in the antecubital vein, for example, depends not only upon the nature of the arterial blood entering the arm but also upon the local metabolism of the arm tissues and the rate of blood flow through them. The normal arterial oxygen saturation is 97%. Carbon dioxide pressure should be determined. If one measures CO_2 content of whole blood, pH and O_2 saturation, one can calculate the CO_2 pressure from normograms. The normal CO_2 tension in arterial blood is 41 mm. Mg.

Exercise Tests are helpful in determining the extent of emphysema. The test is performed by having the patient step up and down on a platform 20 cm. high thirty times in one minute. Thereafter one determines the arterial oxygen saturation and pCO_2. The degree of emphysema is determined by referring to the classification previously described. The above laboratory tests can be determined in almost any hospital laboratory equipped with a Van Slyke apparatus and pH meter. All bloods are collected anaerobically. These techniques are discussed in a text edited by Comroe. In addition a more complicated determination of residual volume would be helpful in establishing the diagnosis of pulmonary emphysema.

Treatment[1,2,3,4,5,7,13,14,20,22,29,26] The treatment of pulmonary emphysema depends on the severity of the disease and the complications that may be present.

Treatment of Group I In the pa-

tients classified as Group 1, in whom the primary defect is ventilatory insufficiency with minimal anoxia and normal carbon dioxide pressure after exercise, the therapy is directed primarily to increasing the ventilatory capacity.

BRONCHODILATORS Bronchodilators administered by means of a nebulizer are very effective in relieving bronchial obstruction. These drugs should be nebulized in a 10-20 minute period four times a day. The dose will depend on the medication used. 1 cc. of Vaponefrin q.i.d. 0.5 cc. of 1:200 Isuprel q.i.d. Although a hand nebulizer as the DeVilbiss #40 is adequate, more effective dissemination can be achieved if a positive pressure apparatus is used. The apparatus will be described below.

A.C.T.H. and cortisone have been noted to exert a bronchodilating action greater than conventional bronchodilators in a few patients with emphysema. However in the presence of infection hormone therapy may well be contraindicated.

DIAPHRAGMATIC BREATHING The patient with pulmonary emphysema usually has an inefficient type of respiration in which the accessory muscles of respiration are used in place of the diaphragm. Several different methods are described attempting to restore diaphragmatic breathing using breathing exercises, supports, pneumo-peritoneum.

Breathing Exercises Various centers have devised their own methods of teaching abdominal and diaphragmatic breathing. Allan emphasizes expiration as an active process teaching the patients to contract the abdominal muscles to produce expiration and relaxing to allow inspiration passively. Barach instructs his patients to place one hand on the abdomen and the other on the chest.

The patient is taught to inhale by keeping his chest quiet and pushing his abdomen outward. This is first taught in the supine position, later in the sitting and walking position. In addition the patient is taught slow expiration with lips pursed, the patient blowing through partially compressed lips. Breathing outward with a restricted orifice at the mouth results in a back pressure that maintains a wider lumen in the brochioles.

Abdominal Supports Gordon outlined the use of low abdominal supports as an aid in obtaining more efficient work from the diaphragm. The belts have been made available through the Spencer Co., New Haven, Conn., and are known as the Gordon-Barach Emphysema Belt. Thin people find these belts particularly uncomfortable. Richards suggests that the determination of vital capacity or following the patient under the fluoroscope, can determine the effectiveness of the belt in improving the function of the diaphragm.

Pneumoperitoneum The value of pneumoperitoneum in helping patients with pulmonary emphysema is not agreed upon. Some observers have noted clinical improvement as well as improvement in pulmonary function studies after pneumoperitoneum in a small group of cases. The value of this procedure is not in that it compresses the lung, but merely that it raises the diaphragm. When used, approximately 500-600 cc. of air is introduced into the abdomen. This is usually repeated every two weeks. An abdominal belt is used in connection with the pneumoperitoneum.

Viscero-diaphragmatic Breathing

Barach suggests improving breathing by placing the patient in a position in which the trunk is elevated above the head. Shock blocks can be used at the foot of the bed to place the patient in a 16 degree head down position. A pillow under the head prevents discomfort from excessive flow of blood to the head.

CONTROL OF INFECTION Wherever possible one should be guided by bacterial culture and sensitivity studies in selecting the proper chemotherapeutic or antibiotic agent. Aerosol and systemic therapy are advised. The prophylaxis of repeated infection is a complicated problem. The use of antibiotics and chemotherapeutic agents may be very helpful in preventing recurrent pulmonary infections. On the other hand the emergence of resistant strains of bacteria and pathogenic yeasts have been reported. The value of prophylaxis has to be evaluated for each individual patient. A warm climate at sea level may be helpful in preventing recurrent infections.

Treatment of Group 2 and 3 Patients with emphysema may in addition to ventilatory insufficiency develop ineffective gas exchange. These patients would be in groups two and three of the previously described classification. Therapy for these patients embodies the principles outlined for group one, with several additional features. These patients develop pulmonary hypertension during exercise secondary to anoxia and therefore should not attempt excessive activity.

When the patient develops CO_2 retention and anoxia, mechanical respirators and Diamox are helpful. O_2 therapy by conventional means is contraindicated as it may remove the only remaining stimulus to respiration. Mechanical respirators will hyperventilate the patient and remove CO_2. The length of time they should be used will depend on the patient's condition. There are many different types of respirators available. One of these is the Bennett intermittent positive pressure device which operates through a mask and applies a positive pressure to the airway and then with expiration the pressure returns to atmospheric pressure. Inspiration and expiration are both initiated by the patient. A nebulizer is attached to the machine so that bronchodilators can be used at the same time. Diamox is indicated in those cases of pulmonary emphysema with carbon dioxide retention and increase in the alkaline reserve. The average dose is 250 mgs b.i.d.

Therapy of Cor Pulmonale Associated with Pulmonary Emphysema Group IV The patient with pulmonary emphysema who in addition has developed right heart failure, presents a very difficult problem in management. Because of their extreme condition they are frequently unable to cooperate. The treatment of cor pulmonale must include an attack on the pulmonary insufficiency. The extent of the lung disease must be determined by analysis of arterial blood for $O_2 + CO_2$. The usual finding in these patients is CO_2 retention + anoxia.

Respirators The administration of oxygen to these patients will remove the only remaining stimulus to respiration with a resulting increase in carbon dioxide. One therefore has to employ some mechanical aid to ventilate these patients when oxygen is given. The Bennett mask respirator has been previously described. This apparatus re-

quires some degree of cooperation from the patient. If unable to cooperate, a Drinker respirator should be used. A patient in a respirator requires careful attention to insure adequate ventilation. Repeated arterial blood studies will show a drop in carbon dioxide if the patient is being adequately ventilated. One can also evaluate the adequacy of ventilation by determining tidal volume with the use of a BMR machine. The Drinker respirator differs from the Bennett in that the rate and initiation of respiration in the latter is controlled by the patient, but in the former it is regulated by the machine. Patients may try to "buck" the Drinker and initiate their own respiratory cycle. This leads to ineffective ventilation. With careful adjustment and explanation this difficulty can be overcome providing there is careful and almost continuous medical supervision. During the acute episodes of cardiac and pulmonary decompensation the patient should use the mechanical aids as much as 18 to 24 hours a day. It generally requires ten to fourteen days of intensive treatment to achieve a state in which the respiratory aids are no longer essential.

Usually the cough mechanism in these patients is poor. Patient should be continually urged to cough and helped by means of suction. Sputum liquifiers as potassium iodide, terpin hydrate and steam should be used. Recently a device known as the Exsufflator has been developed which by changes in pressures simulates a cough and thus aids in getting rid of bronchial secretions. Any drugs which will inhibit the cough mechanism are obviously contraindicated. ACTH and cortisone will increase the cardiac decompensation and should not be used. The methods to control infection, relieve bronchial obstruction and to clear the respiratory passages of secretions described for the previous groups should also be used.

Cardiac Therapy Up to this point we have discussed the treatment of the pulmonary aspect of patients with cor pulmonale. The treatment instituted to relieve the pulmonary dysfunction will aid in restoring the function of the heart. It should be reemphasized that the treatment of cor pulmonale begins with the treatment of the underlying lung condition. In addition specific cardiac therapy should be employed. Mercurials and low salt diets should be used. Digitalization should be instituted because it has been shown that both the immediate and prolonged effects of digitalization produced an increase in arterial oxygen saturation, decreased cardiac output and decreased pulmonary artery pressure. One should be cautioned against using the heart rate as the endpoint of digitalization as these people run a rapid rate in the absence of heart failure. One must avoid intoxication. These patients have polycythemia which is disadvantageous as it promotes an increased venous return to a failing right ventricle. Thus it is imperative to reduce blood volume by means of phlebotomies. The diagnosis of polycythemia must be made by a measurement of the hematocrit and not hemoglobin. The volume of venous blood removed may vary from 300 to 500 cc. and should not be repeated in less than two to three days. Serial measurements of hematocrit and hemoglobin will indicate the total amount of blood which must be removed to return the hematocrit to 45 to 50% without reducing the hemoglobin below 12

grams. Cor pulmonale secondary to emphysema responds to the therapy as outlined. If heart failure persists one should reconsider the diagnosis as it is unlikely that emphysema alone is the cause of the difficulty.

Maintenance Therapy of Patients Recovering from Cor Pulmonale After recovery from the acute episode of cardiopulmonary insufficiency the patient should be followed at frequent intervals. The patient should be evaluated clinically and also by means of certain physiologic measurements. The simplest of these is determination of the hematocrite.

It has been shown that anoxia and hypercapnia stimulate poly-cythemia and the latter increases just prior to heart failure. In addition, the arterial oxygen saturation and carbon dioxide tension should be determined. The oxygen saturation is usually above 80% but may vary 10%. The carbon dioxide tension generally lies in the range of 40-55 mm. Hg. Variations of carbon dioxide tensions greater than 5 mm. Hg. are significant. It is necessary to obtain these laboratory data as there may be a decline in the pulmonary function which is not clinically detectable. It is important to detect this decline early, as it is usually reversible when the therapeutic regimen is intensified. Frequently there is a hidden pulmonary infection which initiates the decline and if treated early will prevent the patient from developing cor pulmonale. The frequency with which the laboratory determinations of the hematocrit and arterial O_2 and CO_2 need be performed will vary with the individual patient.

The emphysema may become so severe that the patients have to rely on mechanical respirators to improve their ventilation. This can be accomplished by the use of the Bennett respirator for three or four hours a day. This is adequate to maintain satisfactory gas exchange.

Conclusion

Chronic pulmonary emphysema is a condition which the clinician should be alerted to recognize and treat. The modern hospital and certainly every teaching institution should have the facilities necessary for the management of this disease. It is of more than academic interest to determine the prsence and extent of pulmonary emphysema as this is a condition amenable to treatment. In the early stages, simple measures will be effective in treatment. As the disease progresses cor pulmonale may develop, but fortunately this is reversible with vigorous therapy. In a minority of patients, the disease may eventually progress to the extent where mechanical respirators will be required for short periods during the day.

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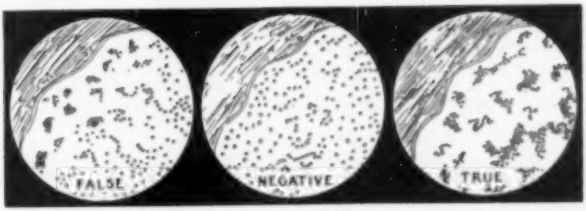
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Scale for reading results of microscopic agglutination tests.

Three Phases of Sexual Development

HARRY PERLOWITZ, M.D.
Brooklyn, New York

"But Doctor, it can't be so!! I'm married and have three children! What can you tell *me* about sex?" This is a gregarious answer from a gregarious group of men and women who feel that marital experience is enough for informative sexual knowledge. The truth is startling. Frankly, a very small number of our population understand the importance and results of sexual education, being unaware that ignorance thereof results in more annulments, divorces and separations than any known cause. When the patient continues, "I know everything that is to be known," I at once retort with, "Very well, suppose you tell me something about your first sex life." Usually, there is no answer until an appreciable pause when the patient will say, "The first sex life? Why, I've never heard of such a thing! What do you mean, doctor?" A discussion then follows about

Our First Sex Our first sexual life begins before we are born. Recent investigators following up the studies of Freud notably from this country and England have brought out the startling conclusions that if a pregnant woman is subjected to traumatic experiences: Illness, forced separation from her husband, death of a family member, etc., the heart rate of the foetus increases as does the number of kicks against the gravid uterus. These depressive influences probably cause changes in her emotional nervous system which in turn are absorbed through the placenta affecting the nervous system of the foetus who then becomes conditioned neurotically and is later born with neurotic symptoms. The infant presents himself with a neurotic tendency or a neurosis. At this point we can rightfully assume that our entire population of newborns is neurotic for every pregnant woman possesses some degree of anxiety. Therefore, in like manner, it is the degree of neuroticism that the infant is born with that makes for a different personality. Depending upon the emotional maturity of the parents the infant conditions himself and is conditioned until the age of seven when his conditioning processes stop.

In discussing the first sex life we will now attempt to discuss the infant until the age of two at which time the second sex life begins.

From the Psychosomatic Clinic, Unity Hospital, Harry Perlowitz, M.D., Chief.

When the infant is born it enters the world with a lusty cry. The very cry itself is a manifestation of fear. Planted in his mother's womb he had very little to fear but he now becomes exhibited in an atmosphere which is permeated by a vacillating order called Society and immediately is expected to adhere to its moral and ethical codes. The biological forces of Love, Hate and Fear soon come into play as he is handled by those who foster his care. If the child is in a hospital, the way he is handled and fed will often depend on his gain in weight and if he feeds properly. For example, if the infant had absorbed neurotic tendencies during his mother's pregnancy and continues because of a hostile attendant, the infant will often have spells of vomiting or diarrhoea and can refuse to eat. The vomiting and diarrhoea is an unconscious attempt by the infant to release his hostility and the refusal to be fed can be an unconscious desire to commit suicide. We have proven this by recognizing and understanding a "disease" called marasmus which often lead to the death of the infant. We now know that love and plenty of it can cure these infants.

After a hospital stay which usually adds to his anxiety (unless he is attended by experienced nurses) the child enters his new home which is recognized by him as the World. No other world exists. His mother becomes the Goddess. Through the aid of his primitive instincts he absorbs from his mother the formative process of conditioning. What part heredity plays is questionable but at any rate we can be certain it plays only a small part. We can also be certain that the mother can cause little or great damage to her infant. Through the medium of the intestinal tract, the mother educates her infant consciously and unconsciously. He first learns of the process of giving and taking. The mother gives him food, "services him" with physical and mental hygiene and takes away his unfinished food, his excretions and excreta. He recognizes his sustenance and security through his mother but does not recognize his repressed fear and guilt by his "misbehavior." His mother is viewed as the Supreme Being in his world, the home, and he becomes deeply affected and involved by her external actions and in the drama between them, he develops, through her behavior, the all important instincts: love, hate, and destruction and during his conditioning, through the processes of "giving and taking," he *takes* food when he is happy and repleted with love and often vomits or has diarrhoea when he is in conflict with his Goddess:—an act which may represent the giving out (hostility) process. Food, therefore, to the infant represents pleasure or a symbol of love. When we are adults, we perform the same acts when we love and hate, i.e., we take in food to have pleasure and often give it out to release hate. Repressed hate in an infant is often associated with constipation not unlike the situation in an adult. Crying, sweating, urinary frequency and diarrhoea represent an unconscious or conscious release of hate, fear or guilt and is therefore a giving away act to one's feelings. In this conditioning of taking and giving much evolves through the media of the eyes and skin. The infant absorbs the feeling of ecstatic pleasure as he is fondled and when his skin is gently massaged during his daily bath and is intensified as he looks into his mother's eyes. The skin and eyes be-

come the primary sexual organs. The pleasure derived from "necking" by 'teen agers is merely a repetition of similar pleasure from infancy. At this point we must recognize that as we mature the process of taking and giving can be a pleasurable undertaking but if our maturity lies at an infantile level repressed fear and guilt result. Likewise petting and necking can take on a healthy attitude, mainly as a result of healthy maternal absorptions or may be substituted by fantasies leading to rape, injuries, accidental or intuitional death, when there are unhealthy maternal absorptions.

From what we have said, it follows that the neurotic mother will condition a neurotic infant and a great play of emotions takes place between them. The mother often swears at the infant threatening to have "his neck broken," "choke him," "kill him," or "drown him." Actually, the same mother plans to do no such a thing. In her neurotic setup she "accidentally" has the infant drowned or fatally injured and although consciously innocent, is unconsciously guilty. The infant, in return, sets the stage to punishing his mother by not eating, which may often mean an unconscious desire to commit suicide, or may eat and have vomiting spells and diarrhoea to release hate or regain sympathy and love. Further scolding by the mother results in further fear and guilt. He feels guilty that he has hurt his Goddess and fears that she may not love him.

At about six months of age he begins to accept the father as the house God. He says to himself, "If he is good enough for mother he is good enough for me." The mother and father become concerned with his erotic behavior. Thumb sucking is almost constant and is biologic. Anal play and playing with his own stool is often seen. These are infantile sexual acts that should not be condemned or stopped. If these acts are forbidden, serious psychological manifestations of infantile behavior may result in adult life. His emotional age may stop at this point and the adult becomes the ano-oral or infantile type. An individual of fifty may have an intellectual age far greater than his emotional age and an individual of fifty may have an intellectual age less than his emotional age. Our intelligence does not necessarily follow our emotional behavior due to our traumatic experiences in early life.

The infant reacts to parental feelings through his endowed instincts. He retains in his memory what is seen and heard probably through the medium of short wave and because of this, parents should place a new born infant in a site away from their bedroom. The infant's sexual system is complete at birth and charged to primitive behavior. The system develops accordingly by the absorption from the parents' behavior, and to a lesser extent by influences from the outside world. Placing an infant in the same room with his parents may often lead to life long psychic disturbances due to absorption of images and noises for which he is not equipped and prepared in line with our moral and ethical behavior. It would be a good idea, therefore, to have a nursery set up in an area away from his parents which may also serve to have the infant recognize that it is not necessary to have fear in being alone.

It has already been stated that the infant in his first sexual life plays with his genitals, anus and is a thumb suck-

er and that these actions are biological somatic needs and unconsciously motivated. What his mother's reactions are and to a lesser extent the father's to this motivation becomes incorporated in the Id which develops until the age of two and becomes the forerunner of the Ego.

Thus, the primary sexual life consists in an interplay among infant and parents whereby the infant absorbs parental actions and speech and images. The infant himself is an ano-oral type that receives sexual enjoyment from thumb sucking, genital and anal play.

The Second Sexual Life With the onset of the second year of life, the infant begins his childhood and enters into his Second Sexual Life which continues until he is about nineteen years of age. He begins to set the stage for the development of his Ego and in doing so lays the groundwork for his superego. This is the Homosexual period which prepares him for his Third or Heterosexual Life.

Whereas, before the age of two the child recognized his home as the World, he now begins to recognize what we call the World. Relatives, friends and strangers make deep impressions upon his feelings. The mere statements that "he is the best boy in the world" or "he is the best looking boy in the world" may lead to dangerous sequences in his adult behavior as he unconsciously struggles to abide by these "forgotten" remarks: for when he finds himself in later life not the best boy or not the best looking boy he unconsciously burrows himself with anxiety because he finds himself not what he was meant to be.

Especially between the ages of two to seven the child may look upon different people in later life as threatening influences. Remarks in childhood that, "I'll send for the doctor if you don't eat,": Eat or the doctor will come and give you a needle",: "Sleep or the Sandman will fill your eyes with sand" will undoubtedly have their effects in later life. If the parents are dishonest, crude, drunkards and liars so will the child absorb much of these traits as the parents represent almost his entire security. In like manner, innumerable situations, too numerous to mention, take place between two and seven producing the conditioning of his security. Too much protection to the child sets the stage for hostility against the parents with resulting fear and guilt. If "everything" is showered on the child the child becomes crippled to follow his own desires lest it would hurt his parents. He becomes imprisoned with his wants and represses hostility towards his parents which in turn causes repressed (unconscious) hate. He lives smothered with love.

At about two years of age, the child, if a male, absorbs unconsciously his mother's image and at about four years old, if a female, her father's image. These absorptions mark the beginning of the so-called Oedipus Complex. The daughter becomes the sweetheart of the father and the father becomes the sweetheart of the daughter; in like manner, the son becomes the sweetheart of the mother and the mother becomes the sweetheart of her son. These absorptions take place with all children and parents and become a universal concept in our motivating forces. Because of unconscious reflections between parents and offspring many unfortunate happenings take place in family behavior. Separations and even divorces have taken place because of the deep

love between father and daughter or mother and son. In either case neither father and daughter or mother and son are consciously aware of their plight. These phenomena are best recognized in early life when a daughter of five may say to her mother, "You know, Mother, when I grow up I'm going to marry Daddy", or, in the case of the son, "Daddy, can I sleep with Mommy tonight?" The songs as sung in later life, as "You red hot Mama" — "Oh Papa" and "My Heart belongs to Daddy" are manifestations of residual Oedipus feelings. The feelings of incest are strongly "charged" in the child resulting in unconscious fear and guilt of sex. Between five or seven the unconscious guilt becomes strong enough for the son to divorce the female from his life and for the daughter to divorce the male from her life. They vow to love themselves but soon discover that this is impossible. In later life, if the Oedipus is not resolved, he seeks a male-type of female for sexual gratification and she seeks a female-type of man for sexual gratification. He still retains his mother as the love object and she the father as her love object. Both suffer from latent homosexuality which can, if healthy home conditions are present, dissolve and a third sexual life begin which we term Heterosexual. The third sexual life begins as a heterosexual life. If, however, traumatic experiences continue in childhood, the child may never reach the heterosexual stage and remain homosexual his entire lifetime.

From what has been said, it becomes necessary for every parent to have a basic understanding of sex. They should answer questions constantly thrust upon them by their children so that sex should not become the filthy and lewd standards in later life. Parental fear of answering questions only adds to the bewilderment of the child who begins to recognize sex as anti-biologic and anti-social.

Between the ages of two and six especially, the child becomes accustomed to a new realization — that there is an outside world. As a result of parental guidance the child absorbs much that leads to personality and character development. He begins to integrate his ego and through his conditioning lay the plan for his superego. In the process of his adjustment he learns to utilize extra energy through the mechanism of compensation and thereby relieve the tensions caused by defects. For example: if one leg is shorter than another he will get an extra heel on the shoe of the shorter leg to compensate the defect. A daughter identifies herself with her mother by trying on her dress. Identification is the main method of character development. Through this process, the child reduces personal tension by identifying himself with desirable situations. The very foundation of character development is laid in identification. Little Johnnie holds his fork and knife properly by identifying himself with his father. Day dreaming, sympathism, fantasy and attention-getting are other mechanisms and are especially related to his love object. We may add repression, retrogression, withdrawal, negativism and criticism which cannot be discussed here. One need only to read any book on mental hygiene. It must again be stressed that all these mechanisms of behavior are in its greatest extent parental "feedings."

Residual effects of thumb sucking and anal play often continue and in this interval, between the ages of two and

six, masturbatory activity or masturbation begins. However, the parents can reduce this urge through sublimation.

When the child enters school at about the age of six he quickly recognizes a world of competition. Teacher gives a star to the one who has an A and praises the one who behaves best. He begins to recognize in his teacher and friends threatening or sublimating forces and unconsciously may recognize the teacher as symbolic of mother or sister which may explain why teacher is so nice when she may be sadistic, or bad when she may be pleasant and constructive. It is in school that he attempts to conform to what is expected of him: to conform to moral and ethical values that were absorbed in his home. With a kind teacher who is firm and not strict in her understanding the child enjoys school and prepares himself on an intellectual basis.

Boys and girls soon "find" their friends and depending on their passive or aggressive attitudes make more or less friends or lose their friends.

Many children seek solace in their mothers' or fathers' "light" and imprison themselves from the outside world. While it can be assumed that boys play with boys and girls with girls as an accepted principle in our society, nevertheless, boys seek boys, and girls, girls, in their homosexual desires but more important because of guilt in relationship to the parent. When boys play with girls they are called Sissies and when girls play with boys they are termed Tomboys. When this takes place the children possess psychic disturbances which drive them to this "opposite direction". Some time between the age of two and thirteen there are unconscious desires of incest between children and their parents: the boy thinks of coitus with his mother and the girl with her father.

When parents are mature and give sexual information to their children in a proper fearless spirit, the children grow up with a healthy rather than a lewd understanding. To assist in controlling the sex impulse, instruction in various aspects of athletics, music, painting, photography and construction act as sublimating forces. These forces tend to release the child from his parents and properly integrate his ego.

From birth until two years of age, the Id, or the basic character development is formulated but after two, until death, the Ego, or character structure is developed and while the integration is taking place it can be traumatized. In its vacillating scheme of repair it is at all times directly proportional to one's own security. One may speak of a person with a strong ego as one who has a mature character development and one who has a weak ego as one who has a weak character or who is in an immature state. The ego, therefore, is the combined result of parental absorption and childhood acceptance. Childhood acceptance or refusal in any decision is important for it can be argued that you can bring a horse to a trough but you can't make him drink. It is however difficult for a child to refuse parental desires for by doing so he unconsciously becomes guilty that he may lose his parents' love and harbor fear for the future so that between the school age and nineteen we find that children harbor excessive guilt, fear and repressed hostility against the parents. Once, while visiting a camp, its director asked me to see a boy of nine who desired to leave the camp. The director noted that

the boy was in a state of panic after watching another boy masturbate. When I saw this boy he was with his father who happened to be a school teacher. The father had previously informed the boy that he "would knock his block off" if he ever caught him masturbating. The boy was in a state of panic because he unconsciously feared he would masturbate and desired to leave camp through the mechanism of "escape to health". This case represents total ignorance of the father towards masturbation and the induction of psychic trauma to an innocent boy who was desirous of reacting to a normal biologic behavior. The damage in this case had been done and a proper explanation to the boy would only have a superficial result. Innumerable forms of phychic disturbances may in a similar manner happen to boys and girls by "ignorant" parents. Psychic disturbances in adult life such as dipsomania, nymphomania, and kleptomania have their origin in childhood as does latent and overt homosexualism. These disturbances are based on fantasy and are conditioning processes which formulate until the age of seven. Our motivation or behavior is merely an unconscious repetition of the past.

The age between six and thirteen can be either a happy or disturbing influence on a boy's or girl's life. There is competition in dressing so that abnormal jealousy may follow. John "shows off" in the presence of Bill whose parents cannot afford the luxuries of a new suit when necessary and abnormal hate may develop towards his parents. In like manner Helen's new dress is a daily affair and all the girls are talking how she is attracted to the boys. There is the competition in height and strength. "Joe is such a good looking boy — he is so tall". "Did you ever see Tom's muscles? Oh boy! He's a real cave man". Boys will often return home with fractured noses and "black eyes" to satisfy a game of fighting. Mothers and fathers should recognize the fact that dress, height, strength or looks are not too important. Janice had a "buxomous chest" which attracted Edward, and Lucy who was "flat chested" was attracted by Martin. Edward and Martin were life long friends and were graduated from law school at the same time. Parents must teach their children at an early age that all external phenomena are only relative in importance, that the character of the person is what is important. When character meaning is indoctrinated into the child the fuss that one places on "electrifying" things is lacking. Unfortunately when the mother or father or both lack maturity character has little meaning and the child will grow with little meaning to moral and ethical values.

When the boy and girl become about thirteen, the boy and girl begin to detach themselves respectively from mother and father. This goes on unconsciously and insidiously until the age of nineteen when boy and girl are supposed to become almost completely detached with only traces of homosexual components present. And so the Oedipus Complex ends. The detachment however does not always take place. Either the son holds on to his mother's apron strings, or the mother, because of her insecurity in relationship to her husband, holds on to her son. The daughter, because of traumatic situations in childhood holds on to her father or the father because of his insecurity in relationship to his wife holds on to the

daughter. When daughters and sons have disturbed relationships with their parents they often hold on to each other. The father, therefore, continues his role as a sweetheart to his daughter or the daughter to her father. The son may continue his role as sweetheart to his mother and mother to her son and brother to sister and vice versa. Of course, when these situations are present, they are related to fantasy and are unconsciously displayed. Detachment of children from parents is a healthy result of parental absorption. Excessive attachment of children to parents beyond the age of nineteen is unhealthy and represents insecurity with unfortunate consequences. The following cases may give light to what is meant.

1) A daughter of fourteen had unconsciously displayed love to her father by sitting on his lap and kissing him in front of her mother. Prior to that time, the mother would be the one to sit on her husband's lap and kiss him every evening. The daughter unconsciously identified herself with her mother and in her Oedipus attempted to sway the father away from her mother who became her competitor. This girl recalled that when she was four years old she remarked that when she grew up she would marry Daddy. At first the mother did not take notice of her daughter's action but as time went on she became irritable and restless with fits of rage and despair and repeatedly accused her husband of losing interest in her. The daughter in turn stuck to her father who himself was somewhat bewildered being an innocent victim of circumstances. The daughter accused her mother of "getting old" and that "she better watch out because some other woman may treat him better." The daughter of course was identifying herself as the other woman. This unconscious motivation continued until the mother left her home against the pleading of her husband. The mother returned only after psychotherapy when she realized and understood the difference between the fantasy and reality of the affair.

2) A mother insisted to her husband that her son was too good for any girl—that he was only thirty and had plenty of time to get married. The father was an inconsistent provider and philanderer and precipitated a great deal of disturbance in his wife which led to her unconscious insecurity in him. On the other hand her son was kind and sympathetic, recognizing that his father was a failure.

In this case the mother and son have displayed unresolved attachments, the mother not "releasing" her son because of her own insecurity and the son not releasing his mother because of a "fractured" childhood.

3) A father insisted that his single daughter accompany him on vacations. He was accustomed to shun away all prospective husbands rationalizing that they were men possessing great defects. The vacation evenings would be spent dancing with her and rarely with his wife. He dismissed all her male friends and repeatedly bought her expensive gifts at the same time "forgetting" his wife.

This case is one where a father identified his daughter with a "forgotten" experience. The jilted sweetheart in turn symbolized his mother with whom he had an unresolved Oedipus.

4) A son of thirty-five had labored consistently and unconsciously in behalf of his mother. He vowed he could never

marry because he could never find a girl like Mom. He paid and insisted on expensive vacations for his mother while his sick father was at home.

His examination revealed a young man with strong unconscious incestual desires who because of his "marriage" to his mother had strong guilt and fear in relationship to any other female and at the same time had displayed great hostility towards his mother in his abnormal sexual drive towards other females.

The above examples are but a few that could be found in any large community and represent problems in human motivation that were resolved through the medium of psychotherapy and again it must be emphasized that the above cases represent individuals who remained in a state of latent homosexualism and had not reached the

Third Sexual Life From what has been said one could conclude that when there is a normal emotional outlet in a family life, one expects that the children will have little trouble in being graduated into the "Third Sexual Life" which is commonly known as the "Heterosexual life". Here the "change" lay between opposite sexes as it should be. When there are parental interferences the young man or woman become imprisoned either in their first or second sexual life depending on their emotional psychic absorption. If the emotional age stopped in infancy he remains what is termed an ano-oral type; if however, the emotional age stops in childhood he remains a latent or overt homosexual. These individuals in a great sense, live by consciously and unconsciously repleting their parent's desires and relatively become obsequious lackeys in their extreme effort to gain their love. As a result, anti-social behavior is common and often fostered by parents who often accept their children's behavior to gain vicarious gratification. A son may steal but often the father will say nothing because unconsciously his son has done exactly what he would have desired to do. A parent may read a murder story before bedtime to gain gratification of an act that he would have liked to perform.

By means of psychological absorption these adults who "remain children by fantasy" often steal and become sexual philanderers. They become masochistic because of unconscious guilt and often retain the necessity to masturbate which is a normal homosexual act in childhood. These adults are often sadistic in order to "get even" with their parents.

When the male marries, due to his latent homosexuality he, in fantasy continues to be "married" to his mother; with the female, to her father; or the male to his sister or the sister to her brother. The marriage is never on firm ground. However, if one of the marriage partners is mature there is, in some cases, a continual sublimating process wherein a male or female latent homosexual can get along very well. Due to the advent of mental cruelty, separations, annulments, and divorces often follow. The "love object" is constantly sought for but never found; the husband for some woman who resembles his mother to enjoy incestual pleasure which cannot be the real pleasure, and the woman for some man who cannot be, in reality, her father. The desperate struggle continues unconsciously until death. In the Third Sexual Life only one love object is sought. The man for his wife, and the wife for her husband. In this Third Sexual phase the husband

had "divorced" himself from his mother and the daughter from her father.

In conclusion, we must recognize that all individuals can pass through three stages of sexual development, the third stage being the mature state. The first stage or ano-oral stage is from birth until about two years when the infant normally plays with his anus and genitals, sucks his thumb and begins his conditioning "through his gastro-intestinal tract; the second stage or stage of homosexualism lasts from two years until about nineteen when the individual normally resorts to masturbation. In contrast to the first two years when the infant develops the Id, the child, in the second stage develops the ego and lays the plans for his superego. In the third stage he reaches the age of maturity wherein the superego rules over his moral and ethical conduct. Although we may say that man has reached his mature age, he never really reaches it completely. If he did he would be a perfectionist, a type of individual that does not exist in this world. Man always retains some residual traits of infantilism and homosexuality which makes him normally imperfect in his perfect phase of maturity.

100 East 96th Street

"MEDICAL TEASERS"

A challenging crossword puzzle
for the physician
page 43a

Some Aspects of Mitral Stenosis

ALFRED DOYLE, M.D.
New York, New York

Mitral Block Dexter[1] and Gorlin[2] have attempted to correlate the degree of stenosis with the type and severity of symptoms by comparing operative and autopsy findings with clinical data.

The normal mitral valve area is 4-6 cm^2. The usual resting cardiac output is about 6 liters. Rate of flow through the valve depends on orifice size and left atrial pressure, and can be increased several times in the normal with only a small rise in left atrial pressure. There are no valves in the pulmonary veins, so pulmonary capillary pressure reflects left atrial pressure quite directly. Pulmonary edema may occur when pulmonary capillary pressure rises to the vicinity of 30 mm Hg., subject to some variation because of individual differences in capillary permeability, plasma osmotic pressure, efficacy of lymphatic drainage, and duration of the hydrostatic stress.

The pressure-flow relationship is such that with a valve area in excess of 1.5 cm^2, dyspnea on any but severe exertion is not to be expected, for the left atrial (and pulmonary capillary) pressures do not have to rise above the critical level of 30 mm Hg in order to squeeze enough blood through the valve to permit a cardiac output adequate to supply the tissues during common types of activity. Persons with this degree of stenosis would generally fall into Group 1 of the New York Heart Association.

With an opening in the range of 1.2 to 1.5 cm^2, a normal resting cardiac output can be shoved across, plus sufficient extra to allow a reasonable sedentary life. These individuals are apt to have dyspnea, pulmonary edema, or perhaps hemoptysis on moderate exertion, such as climbing several flights of stairs. Usually they unconsciously learn to avoid this type of exercise, and are likely to be asymptomatic unless some precipitating cause—emotion, pregnancy, tachycardia, infection—acts to increase tissue demands or cut into diastolic filling time. Their pulmonary artery pressure at rest is normal, or passively slightly elevated by the rise in pulmonary capillary pressure, the pulmonary artery—pulmonary capillary gradient remaining unchanged. Their heart size is about normal, though the left atrium may be somewhat enlarged. They fit approximately into Group 11.

From the Journal Club Conference, New York University-Bellevue Medical Center Post Graduate Medical School, New York, N. Y.

With a valve shrunken to less than 1.2 cm^2, patients may be comfortable at rest, but their pulmonary capillary pressures are so close to the edema level when a respectable cardiac output is maintained that mild exertion usually causes pulmonary symptoms. They cannot easily climb a flight of stairs. Orthopnea, paroxysmal nocturnal dyspnea, pulmonary edema, and hemoptysis occur in various combinations. Pulmonary artery pressures are moderately elevated. Heart size may still be relatively normal. The majority are in Group III.

When the orifice is less than 1.0 cm^2, changes in the pulmonary vasculature commonly restrict the output of the right ventricle, and the dyspnea caused by pulmonary edema may be supplanted by fatigue secondary to low systemic blood flow. Encroachment on the arteriolar lumen by medial hypertrophy and intimal proliferation contributes to a high pulmonary artery pressure. Thickening of the capillary basement membrane permits a further increase in pulmonary capillary pressure (and left atrial driving pressure) before edema fluid will exude. This at the expense of a heightened alveolar-blood oxygen tension gradient. Some degree of arterial oxygen unsaturation may ensue. The A-V oxygen difference increases further as the cardiac output falls. X-ray shows cardiac enlargement ascribable to right ventricular hypertrophy; this usually is suggested by EKC as well. Most of these patients will also be in Group III.

Below .8 cm^2, pulmonary vascular resistance is greatly increased, and pulmonary artery pressure may be very high. Cardiac output is even lower, but atrial pressure and pulmonary capillary pressure must be raised to extremes to force even these 3 or 3½ liters through the valve. The patient is always on the verge of pulmonary edema in addition to suffering incapacitating fatigue. Symptoms are present at rest. The right ventricle, its work increased by a resistance ten or more times normal, may dilate. Tricuspid incompetence is common, as the leaflets can no longer guard the stretched valve ring. The heart is often very large. Engorged neck veins, hepatomegaly, edema, and the whole picture of frank congestive failure are likely to appear. These are almost all Group IV patients.

Now these observations are useful as a general guide in appreciating the symptomatology, but they may be off considerably in individual cases depending on a number of modifying factors:

(a) For a given valve size, there seems to be a great variation in the extent of the pulmonary vascular changes; also in the time required for their development. How this works out in the particular instance will partly determine whether the predominant symptoms are referable to low cardiac output or to pulmonary engorgement.

(b) There can be a major element of myocardial insufficiency perhaps caused by the original or a persisting rheumatic process.

(c) The presence of another valve lesion can alter the relationship. If the orifice is regurgitant as well as stenosed, disability will be more severe. An associated aortic or tricuspid stenosis may restrict cardiac output sufficiently to keep left atrial pressure relatively low.

(d) There may be individual differences in propensity to expand extracellular fluid to an inconvenient level by retention of salt and water.

(e) The contractile ability of the left atrium seems important; this depends on its rhythm, muscular tone, and size. If it is impaired, cardiac output will fall.

(f) In some instances, there is an extreme deformity and thickening of the chordae tendineae, so that part of the block may be attributable to a subvalvular stenosis.

(g) A large man requires a higher cardiac output than a small woman.

(h) Psychogenic dyspnea and fatigue could make a shambles of the whole schema.

Mitral Insufficiency[3, 4] The presence of mitral insufficiency is always a handicap to the heart; depending on its degree this may be overwhelming or trivial.

Because left atrial pressure is so much lower than that in the aorta, a large part of the left ventricular stroke output will pass through a relatively small regurgitant orifice. This effect will be augmented by systemic hypertension; also by arteriosclerosis, which produces increased rigidity of the aorta and higher aortic systolic pressure.

Incomplete left ventricular filling tends to increase the percentage of stroke output passing back into the left atrium. Blood begins to regurgitate during the period of isometric contraction, before the left ventricular pressure has risen enough to open the aortic valves. If left ventricular filling is decreased by tachycardia, or during the short diastolic intervals in auricular fibrillation, the resultant beat is weaker and the period of isometric contraction lengthened; also, the more beats, the more isometric contraction periods. Premature beats occurring early in diastole may not open the aortic valves at all, resulting in complete regurgitant waste.

When there are two openings in a chamber, a quick contraction of its walls favors flow through the larger; thus even when the aortic valve is open, a decreased celerity of left ventricular contraction, as in failure, or with myocardial damage, also contributes to regurgitation.

An otherwise intact heart can maintain a normal resting cardiac output for years, even when one-half of the left ventricular content regurgitates back into the atrium, because the mitral orifice is large enough to permit a doubled rate of left ventricular filling with only a neglible rise in left atrial pressure. But with a complicating severe stenosis, the left atrial pressure would have to rise enormously (well above edema levels) to accomplish this; cardiac output must drop. Even moderate mitral insufficiency is incompatible with severe stenosis, with valve area below 1.0 cm^2. Co-existence of the two would lead to speedy exitus.

The potential regurgitant opening seen at post-mortem may not be a true representation of the state of affairs during life. In normals, the annulus contracts along with the left ventricular muscle, so reducing the area which the cusps must protect. When the structure is calcified and stiffened, this factor is more or less eliminated, and regurgitation enhanced.

Valves examined at autopsy some-

times reveal such a wide regurgitant opening that it seems surprising that death did not occur much earlier; also an obvious regurgitant defect has been found when no jet was perceived by the surgeon at operation. Some of these valves were so immobilized by calcification and scarring that closure by leaflet action was out of the question. Such paradoxes apparently are explained by the occlusion of an eccentrically placed orifice by the left ventricular wall during systole.

When mitral stenosis is complicated by mitral insufficiency, the type of disability tends to be more closely related to low cardiac output than to lung congestion; though this can happen in extreme mitral stenosis as well as the pulmonary vascular changes predominate.

In its early stages, essentially pure mitral insufficiency, with an orifice greater than 2.5 — 3.0 cm, is fairly easy to distinguish from tight mitral stenosis. Sufficient excess filling will be possible, without marked rise in left atrial pressure, to allow the left ventricle to perform the additional work entailed in maintaining a near normal cardiac output, and it will hypertrophy in the process. Pulmonary artery pressure will not increase significantly at first. Physical examination, x-ray, or EKG may detect the left ventricular hypertrophy. But after many years, the left ventricle may fail, leading to a rise in left atrial pressure and pulmonary capillary pressure, with reactive lung changes, increased pulmonary artery pressure, right ventricular enlargement and even signs of right-sided failure. The heart will be very big, and precise delineation of left ventricular size difficult. In a few cases, this picture has simulated advanced mitral stenosis sufficiently to tempt exploration.

Valve areas in the neighborhood of 2.0 cm^2, with large regurgitant openings, might create confusion. Such a degree of stenosis would not be incapacitating if complicated. But to squeeze a normal cardiac output through the valve plus the amount which regurgitates, would necessitate a rise in left atrial pressure; often this does not happen, and the cardiac output falls instead. Left ventricular work will probably not be increased sufficiently to cause demonstrable hypertrophy. Such persons will not tolerate exertion normally. Although a systolic murmur would be expected, operation might yet be advised, and a valve found which could not be dilated to good advantage (surgery does not ordinarily effectively widen the orifice to much above 2.5 cm^2); the danger of creating a greater degree of insufficiency would be present.

There are probably a number of combinations of stenosis, regurgitation, and pulmonary vascular resistance which present insoluble diagnostic problems. All the large series report instances where a degree of mitral insufficiency precluding valvulotomy has been found at operation.

However, significant mitral insufficiency does not necessarily prevent successful surgery. If the stenosis is improved, while regurgitation remains the same, benefit will be obtained. Also, it is possible that freeing of essentially intact leaflets bound together by fibrous tissue could permit a more effective closing action, thus decreasing the degree of insufficiency.

Myocardial Insufficiency The original rheumatic attack was a pancarditis. In some, overt rheumatic activity recurs; it is possible that subclinical

activity is present in others. How much the myocardium is damaged in the process is not known; myocardial weakness cannot be correlated with histologic change. Perhaps additional factors are involved. At any rate, in certain cases, abnormal cardiodynamics appear attributable more to myocardial insufficiency than to mitral block. Harvey *et al.*[5] studied patients believed to have predominant mitral stenosis referred to them for evaluation before commissurotomy.

The first category had elevated resting pulmonary artery pressure which increased further with exercise. Their cardiac outputs did not increase normally with work. Digitalis did not lower pulmonary artery pressure or increase cardiac output significantly, as judged by chronic administration of the drug and repeat catheterization, or by acute trial during catheterization. This was felt to exclude severe left ventricular failure (which also can cause elevated resting pulmonary artery pressure). These patients were operated and found to have severe stenosis. Post-operatively they were much improved, with a marked drop in pulmonary artery pressure in each case. It was concluded that mechanical obstruction was the chief reason for their impaired circulation.

Class 2 had normal resting pulmonary artery pressure, and again, a subnormal rise in cardiac output with exercise. Normal pulmonary artery pressure is not compatible with severe stenosis. But the hearts of these people were as large or larger, their number of bouts of congestive heart failure as numerous, and their general disability as great or greater as those in class 1. Some factor other than mitral block was at work. Intravenous digoxin produced a definite decrease in pulmonary artery pressure and increase in cardiac output in those whom it was given acutely; its chronic effect was judged to be similar. Such a response, in the experience of these investigators, is observed only in the presence of left ventricular weakness. Two of these patients were subjected to surgery—neither was improved.

From their clinical and physiological studies they conclude that pulmonary hypertension at rest is a requisite for surgical consideration; if it is lacking, there is probably either slight stenosis or major myocardial insufficiency. Also, patients with resting elevated pulmonary artery pressures must be given an adequate trial of medical therapy to exclude, as far as possible, left ventricular failure as its cause. They feel that they are unable to determine the presence of pulmonary hypertension on clinical grounds alone in all cases. Their experience on this point concurs with that of Fowler,[6] who concluded on the basis of catheterization studies, as correlated with clinical data, that right-sided failure or evidence of right ventricular hypertrophy on EKG were the only consistently reliable indications of significantly elevated pulmonary artery pressure; an accentuated pulmonary second sound, a right ventricular thrust, or evidence of right ventricular hypertrophy on x-ray were sometimes associated with normal or only minimally increased pulmonary artery pressure. Unless evidence of pulmonary hypertension is unequivocal, they suggest catheterization be done to exclude those without severe mitral block.

Selection The consensus is that patients with mitral stenosis in Groups I and II are best treated conservatively at present. A useful expression of this

is that a patient who can consistently walk up one flight of stairs at a normal pace without symptoms is not a candidate. Such persons can market, do house-work, have children, and work at sedentary occupations. Operations, except for the odd case, could not be expected to accomplish much more, and the risk of mortality and morbidity outweighs any possible gain. We found no report of a patient with severe mitral stenosis whose cardiac hemodynamics, measured objectively, have been restored to normal by valvulotomy.

Prophylactic surgery has been advocated by some, while the cusps are still pliable, before general deterioration increases the operative risk, before pulmonary vascular changes take place. However, the prognosis for Groups I and II is quite good anyhow, judging from the studies of Grant[7] and Olesen[8] and unfortunately, there is no way to spot in advance those who will ultimately become incapacitated. At present the vote is overwhelming against random prophylactic operation.

Groups III and IV should be operated, for here, real benefit can be expected. The problem arises in assigning patients to the respective groups. Severe overexertion, paroxysmal tachycardia, pneumonia, pulmonary infarct, pregnancy and other precipitating factors can drop an individual out of Group II just as well as can a slow progressive decline. A large number of these will be restored to Group II by rest or medical therapy. When there is an obvious reversible cause, we believe that continued conservative management is indicated. A smaller contingent will become symptomatic on normal activity without apparent cause, and subsequently return to their usual status. How many such lapses should be permitted before operation is advised will depend on the severity of the symptoms, their frequency, and intensiveness of the remedial medical treatment required; evidence of a progression in disability is especially important. In equivocal cases, the decision for commissurotomy would be favored by a diagnosis of pure uncomplicated stenosis; whereas if some relative contraindication existed, such as apparently significant mitral insufficiency, gross mitral calcification, or evidence of an aortic lesion, one would tend to employ medical methods if possible.

Embolization seems to be considerably less common after commissurotomy. Of 500 consecutive patients operated by Harken, 79 (about 16%) had a history of one or more emboli. 440 of these were followed for an average period of 22 months post-operatively; only 5 had emboli during this period. The incidence of this complication at and immediately after surgery was:

	Group III	Group IV	
with auricular fibrillation	8%	17%	over-all about 9%
with NSR	3%	12%	

And of the 79 with prior embolization, 22%. Most series report an incidence of embolization associated with surgery of 5-10%, but the difference between those with and without a history of emboli is not as striking as above. Harken appears to have had less luck with emboli than some other surgeons, perhaps because his series contains a larger proportion of advanced cases, who are more prone to this complication. Bailey[9] was sufficiently impressed by embolization at the table to expose the roots of the carotid arteries and occlude them with tapes when the auricle was entered or when the valve was incised. This reduced the

incidence of cerebral emboli in his material from 5% to about 2%. Peripheral emboli can often be dealt with. Harken et al. recommend operation for recurrent embolism in patients whose degree of disability would otherwise not warrant the procedure. The case is not convincing on the basis of his figures, but considering the more favorable experience of others, perhaps two emboli in a relatively short period of time would constitute a minimum indication in this type of patient. The proponents of long-term anti-coagulant therapy might challenge this position. Simple ligation of the auricle does not seem satisfactory, since about 50% of atrial thrombi are found in the body of this chamber.

Physical Diagnosis Wood[10] gives an excellent description of the physical findings in mitral disease, correlating the pre-operative picture with the findings at surgery and with subsequent results, in a series of 150 patients.

Cardiac Impulse A right ventricular thrust was present in 80% of the cases. Its magnitude correlated generally with the severity of pulmonary hypertension and with EKG findings of right ventricular hypertrophy. When a left ventricular heave was present, the patient almost always had significant mitral insufficiency or an associated aortic lesion. In a few instances, an extremely large right ventricle, forming the cardiac apex, produced a heave as far out as the anterior exillary line, simulating left ventricular hypertrophy, but here EKG was useful in avoiding error.

First Sound This was loud in 90% of those with pure mitral stenosis and NSR. Auricular fibrillation was associated with a somewhat lesser intensity, perhaps because of the generally lower cardiac output in those with this arrhythmia. With auricular fibrillation, the first sound was usually loud after a long antecedent diastolic interval, softer when the previous diastole was short; again, this seems related to the degree of filling and therefore the forcefulness of left ventricular contraction. Also, in some cases with very high pulmonary vascular resistance and low cardiac output, loudness tended to be less marked.

Quite striking was the association of significant mitral insufficiency with a normal or only moderately accentuated first sound. This was true even when the valve was not markedly calcified (calcification itself, in those cases in which it was not associated with mitral insufficiency, appeared to damp the sound). A loud M_1 in mitral stenosis is thought to occur because all of diastole must be utilized to squeeze blood across the narrowed valve—thus the leaflets are kept well apart until ventricular systole suddenly drives them back into apposition. This could not happen if the valve were rigidly calcified; nor would it be expected if the orifice were wide enough to allow most of the filling before late diastole, conditions which are more commonly present in conjunction with mitral insufficiency.

Presystolic Murmur This was heard in all but two of the patients with NSR; these had a serious degree of mitral insufficiency. It was often absent in cases refused operation because of predominant mitral insufficiency. Post-operatively, it disappeared in about one half; these persons had good results, unless serious mitral insufficiency had been produced surgically, in which event it was also apt to disappear.

Mitral Systolic Murmur When there was no systolic murmer, in only two out of ninety was a regurgitant jet perceived

by the surgeon, and this was slight in both. But of those with a grade III or IV murmer, a considerable jet was felt in about three out of five and a slight or moderate jet in 30%. A grade I murmer was associated with no or slight regurgitation in 80%, and a moderate jet in the rest; the figures were about the same in those with a grade II murmer, except that there were fewer with no, and more with slight, jets. For comparison Janton[11] found that none of 200 without a regurgitant jet had a Grade IV murmer; only six of 200 such patients had a Grade III murmer. However, a Grade III or IV murmur was heard in 13 of 15 of those with a 3 or 4 plus jet. Grade I and II murmurs were heard frequently in the absence of a perceptible jet. It was felt that scarring and calcification of the anterior leaf of the mitral valve, creating turbulence of ejection along the left ventricular outflow tract, may have accounted for some of the murmurs heard when there was no regurgitant jet. Aortic murmurs heard only at the apex occasionally were confusing, but could generally be distinguished since they started later in systole, and rarely encroached upon the second sound.

The results in those with Grade III or IV murmur were poor or only fair in 90%, and in those who developed such a murmur post-operatively, there were concomitant signs of gross mitral insufficiency in 85%. In Wood's series, the functional result was about the same whether no, a Grade I, or a Grade II, murmur was present pre-operatively; whether (in a few cases) a Grade I or II murmur present pre-operatively disappeared; or whether a Grade I or II murmur not previously heard developed after operation.

Opening Snap This sound is described as brief, high-pitched, often clicking, usually heard widely but best in the supra-mammary area or along the left sternal border, and more prominent on expiration. By phonocardiogram it is observed in the great majority of cases to follow the second sound by .05 to .10 seconds, though occasionally by slightly more or less, and to consist of a few high frequency vibrations. It is attributed to the abrupt opening of the stiffened cusps under an increased head of left atrial pressure.

The opening snap was absent in 24 out of 150 patients. Of these, 16 had significant mitral insufficiency, heavy calcification, or both. Wood ascribes the lack of an opening snap in these cases to (a) excessive distortion and rigidity of leaflets, with alteration of their vibratory properties, (b) the larger orifices found with mitral insufficiency, with lesser A-V filling gradients. Another 5 had an extremely high pulmonary vascular resistance, and he speculates that here a large right ventricle and pulmonary artery, intervening between the valve and the chest wall, may have impaired transmission of the sound.

Third Heart Sound In comparison with the opening snap, this is lower pitched, longer in duration, heard best at or slightly internal to the apex, and in inspiration; its mid-point occurs .16 to .25 seconds after second sound. It was never detected in the absence of a loud systolic murmur. Wood never heard it in his cases with pure mitral stenosis. (However, a sound with these characteristics has rarely been heard by others in instances of isolated mitral stenosis, and recorded when not audible on additional occasions; a right ventricular gallop sound is difficult to exclude

in this situation). It is ascribed to rapid filling of the left ventricle, and would be expected in predominate mitral insufficiency; whereas its presence in mitral stenosis, with impeded left ventricular filling, would be difficult to explain.

The third heart sound was audible in 85% of cases with moderate to severe mitral insufficiency, and in 25% of those with lesser degrees of mitral insufficiency. Of these operated in spite of it, none were improved. Patients in whom mitral insufficiency was produced at surgery often developed a third heart sound. Wood regards an unequivocal third heart sound as a powerful contraindication to commissurotomy.

The various physical signs are of foremost importance in the selection of patients for surgery, especially in regard to the assessment of mitral insufficiency. When the clinical picture seems clear-cut in this respect, other studies usually add nothing. Laboratory help is essential when a rather loud apical systolic murmur is present, for a few with such a murmur will have none or only mild regurgitation.

If the explanations advanced for the other sounds are correct*, it is understandable that they are occasionally misleading. For example, a high A-V diastolic gradient, the potential for a loud first sound, and opening snap, can exist in certain combinations of mitral insufficiency and mitral stenosis unsuitable for surgery.

Physical diagnosis is weak in two situations; where trivial mitral stenosis is complicated by psychogenic dyspnea and fatigue; also where the patient is truly handicapped, but chiefly because of myocardial insufficiency rather than mitral block.

Calcification Gross calcification of the valve, demonstrable pre-operatively, is a relative contraindication to surgery. It is often not seen on conventional x-ray; fluoroscopy is better in its detection and planigraphy best of all. Wynn[24] compared 60 patients with gross calcification, seen pre-operatively, or with large craggy masses discovered at surgery, with 170 patients without such calcification. Significant mitral insufficiency was twice as common in the former group. This experience is representative.[10 12] Soloff[25] believes that additional valvular lesions, unsuspected pre-operatively, are found in a higher percentage of those with mitral calcification. It may be difficult or impossible to fracture a heavily calcified valve, and the increased vigor of manipulation required may cause damage to adjacent structures. If such valves are incised along the commissures, the surgeon may then be able to push his finger through the orifice, but the left atrium exerts a tiny force in comparison, which may not be sufficient to budge the encrusted leaflets, so that the effective valve area is but little changed.

The risk of embolism is considerably increased, since bits of calcium are apt to be dislodged when the valve is broken or cut. Some of the emboli which have occurred when no thrombus has been encountered in the atrium doubtless arise from this source.

It would be expected, therefore, that the results would not be as satisfactory in this group of patients. Ellis, *et al.*[12] reported that 43% of those with extreme

* McCusick (Circulation, 11:849, 1955) suggests that abrupt halting of the leaflets by shortened chordae tendineae and/or fibrous changes in the leaflets, contribute to the intensity of the first heart sound.

calcification were unimproved or worse post-operatively. Wood's percentages were similar. Ferrer et al. observed no improvement in their cases with a systolic murmur and a demonstrably calcified valve.

However, if a patient definitely meets the other criteria for operation, it should be recommended. Many excellent results are described. Where the feasibility of operation is not assured, calcification should be sought for and its presence given consideration in making a decision.

Aortic Involvement If aortic stenosis is present, the increased flow after removal of mitral block may place excessive strain on the left ventricle, leading to its failure, with rapid subsequent decline. Surgery in this circumstance requires a concurrent attack on both valves.

Likoff *et al.*[13] report the results of 74 patients with combined mitral stenosis and aortic stenosis operated by Dr. Bailey. All had a rough aortic systolic murmur; most a thrill and absent or decreased A2. Where doubt existed as to the origin of a systolic murmur, brachial artery pulse tracings, with Valsalva maneuver, were recorded. An anacrotic notch, or a slurred ascending limb with a delay in its peak, were considered diagnostic of aortic stenosis. The results in 15 persons with mitral stenosis and aortic stenosis were good, and there were no fatalities. This outcome is better than that observed in their patients who had dilatation for pure aortic stenosis; the group believes that mitral stenosis in this situation prevents excessive left ventricular hypertrophy and myocardial degeneration. However, in 35 with aortic stenosis and mitral stenosis plus "insignificant" aortic insufficiency (a diastolic murmur without abnormal blood pressure) the operative mortality was about 25%. The rest had mitral stenosis, aortic stenosis and some other significant valve lesion; 50% succumbed on the table.

An abnormal brachial artery pressure curve indicative of aortic stenosis contraindicates surgery unless simultaneous aortic revision is planned. If there is aortic insufficiency without aortic stenosis, a diastolic blood pressure of less than 30 is regarded an absolute, and from 30 to 50 a relative, contraindication.

A diastolic murmur along the left sternal border with normal blood pressure is no barrier—it may be a Graham-Steell murmur, or if not, is hemodynamically insignificant aortic insufficiency.

Significance of the Pulmonary Changes Bulow *et al.*[14] recently reviewed this topic and added observations of their own. Earlier workers found intimal fibrosis and medial hypertrophy, with scarring and decrease in lumen size of the pulmonary arterioles; thickening of capillary basement membranes, and sclerosis of alveolar walls, in the lungs of patients with mitral stenosis at autopsy, and predicted that in some cases these alterations would prevent satisfactory response to commissurotomy since resistance to right ventricular output would remain after the mitral block was removed; this was thought especially applicable to those with long-standing, severe pulmonary hypertension.

Numerous lung biopsies were taken during operation by various groups. In general, it was found that only a rough correlation existed between the extent of the vascular changes and the product

of pulmonary arterial pressure times the duration of symptoms. Some with a mean pulmonary arterial pressure of the order of 40 mm. Hg. (moderately elevated) had no changes, and in these the rise in pulmonary arterial pressure was attributed to a functional increase in vascular tone. That an element of reversible spasm accounted for a large part of the increased pulmonary vascular resistance was further indicated by the striking reduction in high pulmonary arterial pressures during administration of intravenous hexamethonium. Bulow et al. were frequently able to demonstrate by angiopulmograms that arterial narrowing was present during life when this did not show on lung biopsy or at autopsy.

Finally, there seems to be no correlation between the functional results obtained by operation and the extent and degree of these vascular changes; marked decreases in pulmonary arterial pressure have occurred in the face of apparently severe changes seen on lung biopsy.

It is concluded that although the vascular changes may be responsible for a degree of residual incapacity in some cases, their presence is not nearly as ominous as once supposed, and that other factors, such as myocardial insufficiency or coexisting valve lesions play a larger part in predetermining the amount of post-operative improvement. However, they did believe that a higher incidence of pulmonary complications (atelectasis, pneumonia, effusion, pneumothorax) was to be expected in those who demonstrated marked pulmonary changes.

Electrocardiogram A "mitral" P wave (duration greater than .11 seconds in Lead II, usually notched, bifid, or flat-topped) is present in the great majority of candidates for operation. In addition, P tends to be of greater than normal amplitude in Leads II and III, and is frequently diphasic in V_1. However the P wave is of little assistance in selection since its appearance is quite similar in cases of predominant mitral insufficiency.

About 35% of patients with mitral stenosis and elevated pulmonary arterial pressure show right ventricular hypertrophy on electrocardiogram; another 15-20% have incomplete right bundle branch block (in the precordial Leads V_1-V_6), which may occur at any level of pulmonary arterial pressure, and sometimes furnish the only hint of right ventricular enlargement. When the pulmonary arterial pressure is below 30, right ventricular hypertrophy is rarely evident; it is usually present when mean pulmonary arterial pressure is above 60, in the absence of marked mitral insufficiency or an aortic lesion. Most of the exceptions to the latter rule will have incomplete right bundle branch block.

The picture of right ventricular hypertrophy in mitral stenosis is hardly ever as florid as that seen with congenital heart disease; the height of R in the right-sided Leads and the depth of S over the left precordium is much less. A diagnosis of right ventricular hypertrophy based on the findings of an R/S ratio greater than one, with a delay in activation time, in Lead V_1, will generally be confirmed at autopsy.

A normal electrocardiogram is of no help in excluding serious mitral insufficiency; a pattern of left ventricular hypertrophy is uncommonly found unless mitral insufficiency is gross. On the other hand, if right ventricular hypertrophy is present on electrocardiogram,

severe mitral insufficiency is unlikely, since a relatively small degree of left ventricular enlargement will mask considerable right ventricular enlargement; an occasional exception is reported.[11]

The electrocardiogram is especially important where the heart is of sufficient size to make assessment of the chambers difficult radiologically.

X-Ray The most important contribution of radiology in evaluation of candidates is determination of the size of the left ventricle. The most helpful indications of enlargement of this chamber in mitral valvular disease are (1) on the P-A view, depression of the apex and its displacement to the left, (2) on left lateral, encroachment upon the postero-inferior cardiac recess. The validity of these signs is progressively weakened as the other chambers enlarge. A big right ventricle tends to push the left ventricle to the left and posteriorly; in extreme cases its borders may form the apex.

Although the apex in such instances tends to be elevated rather than depressed, this point cannot always be decided with certainty. Displacement of the left ventricle toward the spine by an enlarged right ventricle, or intrusion of a massive left atrium into the posterior-inferior space impairs the usefulness of the left lateral projection. The same factors limit the accuracy of fluoroscopy. When the heart is very large, most radiologists are pessimistic as to the possibility of predicting left ventricle size on conventional films. In such cases, more reliance is placed on physical examination and electrocardiogram.

Angiocardiography has been used when clinical and other means have given ambiguous results. It has been applied particularly to patients with prominent apical systolic murmurs, but with no definite evidence of left ventricular hypertrophy by physical diagnosis, x-ray, or electrocardiogram. The size of the left ventricle can be more accurately determined; in addition, with predominant mitral stenosis, the left atrium becomes sharply opacified and remains outlined for an abnormally long time; with predominant mitral insufficiency, the presence of dye in the left chambers is also unduly prolonged, but the left heart is relatively uniformly opacified.

Although angiocardiography is undoubtedly of help to those workers who have extensive experience with its application to mitral lesions, and although it can decisively distinguish between extremes, its results tend to be equivocal in just those cases which are difficult to assess by other methods, where regurgitation is hemodynamically important, but not great enough in absolute amount of hypertrophy of the left ventricle more than minimally. In such situations there may still be enough mitral block to enhance left atrial opacification. A more unusual source of error is the presence of a large left atrial thrombus.

Tricuspid Insufficiency Sepulueda and Lukas[15] catheterized 146 patients with mitral stenosis who had been relieved of failure medically as far as possible. Sixty had abnormal rises in right atrial systolic pressure considered diagnostic of tricuspid insufficiency. The clinical diagnosis had been made previously in only one-fourth. The great majority were believed to have functional incompetence rather than organic valve alteration, though this distinction can rarely be made ante-mortem.

Fifty-eight of the 60 had auricular fibrillation. It is thought that this arrythmia itself may cause some degree of regurgitation because atrial systole seems necessary for complete closure of the A-V valves before ventricular systole begins.[16] Most of the others had hepatomegaly and two-thirds were in frank congestive heart failure. The average pulmonary vascular resistance and right ventricular pressure were distinctly higher as compared to the group without tricuspid insufficiency. The classical clinical signs, pulsating liver, pulsating neck veins, and characteristic murmur were present only infrequently, in about 10% of the series. They tended to be associated with very high right atrial pressure.

Tricuspid insufficiency is important (a) because of the increased strain it places on the right ventricle and (b) because its murmur may be ascribed to mitral insufficiency and operation rejected on this account. The murmur is usually heard best at the lower left sternal border, and increases with inspiration, while the murmur of mitral insufficiency is maximal during expiration. It is likely to diminish or disappear as signs of congestive heart failure subside. Some systolic murmurs present pre-operatively when no regurgitant jet has been felt at surgery may be explainable on the basis of tricuspid insufficiency. Presumably, these patients should be improved by commissurotomy unless there is organic tricuspid damage, since reduction of right ventricular systolic pressure subsequent to removal of the mitral obstacle would be expected to decrease dilatation of this chamber.

Results The report by Ellis and Harken[17] on their first 500 valvuloplasties is quite representative of the results of most other large series. The operative mortality was zero for the few Group II patients. For those in Group III, it was 14% in the first 100 of the cases, but fell to only 3% in the last 100; subsequently, 200 additional in Group III have been submitted to surgery with only one operative death. The mortality for those in Group IV has been in the neighborhood of 25%; this is higher than reported by others; the fact that it has not been decreased despite technical advances reflects their policy of operating on all who appear to have a chance of improvement despite the risk, if the prognosis otherwise appears short and hopeless. This attitude may spring from their earlier experience with 19 in Group IV who refused surgery; 17 were dead within a year.

Questionnaires were sent to the 440 of the 500 still living and elicited the following responses: of those in Group II pre-operatively, 85% felt markedly or moderately improved, of Group III 80% of Group IV 70%. A few stated that they were slightly improved, a few seemed unchanged and only 3% believed that they were worse. Of those who reported a definite improvement persisting 6 months or more post-operatively, only 30 (about 7%) subsequently relapsed. Information gathered from local physicians and in some cases by personal examination tended to corroborate these figures. Unfortunately no break-down of these results is furnished; for example, how many lost their edema, were able to discontinue mercurials, etc.

Other types of assessment stand in somewhat of a contrast to the above findings. In no series has there been any consistent decrease in heart size;

in some who feel better, the heart is actually larger. The electrocardiogram is for the most part unchanged, though occasionally the pattern of right ventricular hypertrophy has regressed. The diastolic murmur frequently is decreased in intensity (even after any pericardial fluid that may have collected has resorbed); rarely, it disappears. An apical systolic murmur appears in about one-third, increases in others, is gone in a few. Sometimes the lung fields are noted to be less vascular.

It is not a rarity for an individual who has had only cardiotomy, without manipulation of the valve, to claim marked subsequent improvement. Some patients without hemodynamic change report relief post-operatively. Suggestions have been made that some of the reported good results of valvotomy can be ascribed to the abolition of neurogenic (sometimes iatrogenic) dyspnea and fatigue, failure to utilize medical therapy adequately before operation, natural variations in the course of rheumatic disease, and to the eagerness of both referring physicians and patient for improvement. There is undoubtedly some validity to each of these points. Unfortunately there are no true controls for the evaluation of achievements of mitral surgery. There is little statistical information as to the course of patients with mitral stenosis treated medically who are sufficiently free of cardiac and other complications to be good prospects for operation. Investigations of this kind utilizing material drawn from pre-mercurial and pre-antibiotic days are of limited value. There are a few recent surveys dealing with the aspect of longevity in patients afforded the medical treatment available during the period of observation. Wilson and Greenwood[18] encountered 100 patients during the years 1937 to 1941 who in retrospect would seem to have been reasonable candidates for commissurotomy. All had a degree of disability roughly corresponding to Group III of the New York Heart Association when first seen. They were ward patients and probably unable in some instances to lead restful lives because of financial reasons. Sixteen percent were dead within 6 months, 45% in five years, and 77% in 15 years. Death was attributable to their cardiac condition in about 90%; one-half died in congestive heart failure or acute pulmonary edema. Of those first seen when in right heart failure (Group IV), 24% were dead in six months, 50% in 5 years, and 90% in 15 years. (Heart size was an important indication of prognosis; 65% of those with cardiothoracic ratio of 60% or less survived 5 years and 53% 10 years. But when the cardio-thoracic ratio was above 60%, only 35% were still alive in 5 years and 22% in 10 years.) These figures correspond well with those of Oelsen (8), who followed 270 persons thought to have mitral stenosis as the only significant lesion. Whether surgery will raise the life expectancy of individuals in these categories remains to be established; there are some who predict that it will not.

Perhaps a more important question, and one even more difficult to answer, is how much less disability will the survivors of surgery have as compared to a similar group treated medically. Although a precise statistical demonstration of the benefits of commissurotomy is not available, and although due regard must be accorded to the various

criticisms of the way the results of the large series have been interpreted in their presentation, the clinical impression of a great many prominent men that most of their patients have been definitely helped must be given paramount consideration.

In addition, physiologic studies have shown hemodynamic and other evidence of improvement in many subjects; here again a fair determination of the pre-operative baseline is important.

Of Janton's[19] 29 cases with high pulmonary arterial pressure, all but one of those who survived surgery had a reduction post-operatively. This exception had a marked increase, probably due to the accidental production of mitral insufficiency during commissurotomy. Most of those with moderately elevated pulmonary arterial pressure also had a drop, not as striking, however, as in the former group. Of 32 in this classification, 7 were found to have increased pulmonary arterial pressure — nevertheless they were thought to show unequivocal clinical improvement. In about a dozen who had normal or slightly raised pulmonary pressure to start, there was no significant change. These persons never had really incapacitating symptoms. Some of the catheterizations were done a few weeks post-operatively and when these were repeated later, a tendency to further improvement was noted.

Grafoord[20] compared pre- and post-operative catheterization findings in 19 with marked clinical and subjective response with the data in 11 who had little or no improvement. In the former there was a significant favorable change in the average A-V oxygen difference, cardiac index, and pulmonary arterial pressure; in the latter these measurements were unaltered.

Werko[21] studied the pre- and post-operative cardiopulmonary situation in 46 patients. One-half were improved according to physiological criteria. He stated that "in no case did pulmonary dynamics return to normal after operation. Although improvement in several cases was remarkable, there remained a pathologic reaction to exercise typical for mitral stenosis, even in the most successful cases. This fact is of importance for the discussion of the indications for commissurotomy in cases with only slight changes."

Judson[22] made intensive evaluation of the results of surgery in 9 persons. On the average, stroke index was increased, while pulmonary capillary pressure, pulmonary arterial pressure, right ventricular diastolic pressure after exercise, pulmonary vascular resistance and pulmonary arteriolar resistance during exercise were all significantly decreased. Right ventricular work was slightly decreased, as the reduction in pulmonary vascular resistance outweighed the slight rise in cardiac output. This is of interest, since it had been speculated that relief of mitral block and therefore of pulmonary congestion, would permit increased patient activity and higher cardiac output while the pulmonary vascular changes remained, thus adding to the load on the right ventricle. There was an increase in left ventricular work.

Pre-operative resting renal plasma flow was approximately one-half and glomerular filtration rate four-fifths of normal valves. After operation, the resting renal plasma flow and glomerular filtration rate were both increased, the latter approaching normal. In response to exercise, the renal plasma flow fell only one-half as much now as it had

before, and the glomerular filtration rate also fell less. All the renal functions, including output of salt, tended to recover from exercise more rapidly after operation.

Six of the nine advanced one or more groups in the New York Heart Association classification. In general, symptomatic response paralleled improvement in cardiac and renal function. However, in some patients marked subjective improvement was noted with little or no change in objective measurements. One patient who had only exploration claimed substantial relief for six months post-operatively.

In none did the cardio-renal hemodynamic findings return to normal.

Approaching the matter from a different angle, Wilson[23] and associates found a relative excess of sodium and water in the body composition of patients before operation. No clinically detectable edema was present, so it was felt that the alterations were analagous to those seen in malnourished states and chronic wasting diseases leading to a loss in cell mass and fat. Several months post-operatively a gain in weight was noted. The sodium and water proportions decreased as the exchangeable potassium rose, evidence of increasing muscle mass and increase in store of body fat. They believed that the changes were a good indication of the effectiveness of valvuloplasty, and that where cardiac function did not improve, such restorative changes were not seen.

One of the most meticulously evaluated series was that of Harvey Ferrer *et al.*[5] Of the 60 subjects referred to them as possible candidates, about one-half were selected for operation. Four were excluded because their resting cardiac output and exercise pulmonary arterial pressure were relatively normal; their symptoms therefore were ascribed to non-cardiac environmental and psychic factors; this was borne out on follow-up.

Another 9 were considered to have predominant myocardial insufficiency as determined above. Fifteen (a strangely high proportion) were diagnosed as having active rheumatic fever or SBE. Five were rejected on miscellaneous grounds. Of the remaining 27, 13 had exclelent or good results. All of these had marked falls in pulmonary arterial pressure; in a few the response of cardiac output to exercise was improved. In none were the hemodynamics restored to normal. There were 5 operative deaths. Of the remaining 9, none had evidence of circulatory improvement, although several felt much better. Six of these 9 have subsequently died.

In evaluating these somewhat discouraging results it must be kept in mind that the series, though highly selected, was small, and that operative mortality has been almost uniformly reduced after a surgeon has had the experience of fifty or one hundred commissurotomies.

Conclusion

Mitral block, one of the factors contributing to disability in persons with mitral stenosis, is partially eliminated by surgery. A strong clinical impression exists that selected patients are benefited by operation; this is supported to some extent by physiologic studies.

In a certain percentage of cases, it is impossible to determine preoperatively whether significant correctible mitral block is present. When incapacitation is marked, exploration to settle the point seems justified.

Commissurotomy is indicated for suitable patients in Groups III and IV and possibly for recurrent embolization.

Elevated resting pulmonary artery pressure is a prerequisite for surgery. Catheterization may be required to establish its presence.

Gross calcification is a relative contraindication to operation, especially if it is associated with an apical systolic murmur.

Operation should not be refused because of presumed irreversibility of pulmonary vascular changes.

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Clini-Clipping



Impetigo types—Illustrated on the left is the crusted type and on the right, the circinate type of impetigo.

A New Tranquilizer Meprobamate*

Its Use for Pain Associated with Cancer, Preliminary Report

LEON N. KESSLER, M.D.
Hewlett, New York

ROBERT D. BARNARD, M.D.
Laurelton, New York

Pain is a real and commanding symptom of many patients with neoplastic disease. Advances in hormonal, nutritional and supportive therapies have modified the formerly bleak outlook for at least some patients with inoperable cancer. Reversals of course with prolonged, renewed active life span have been divulged in some recent clinical series[1,2,3,4] composed of patients who had either exhausted the possibilities of, or were considered unsuitable for, the orthodox therapeutic modalities of surgery and/or radiation.[5] During accumulation of our own treatment series of patients with advanced cancer on a corticosteroid-antibiotic schedule[3] we found that commonly employed narcotic or depressant drugs used for pain or discomfort, or anxiety, could themselves constitute a lethal complication of cancer and could impose limitations on the supportive treatment employed. For example we encountered comatose patients considered to be terminal as a result of the neoplastic disease per se, but who regained conciousness and were able to assume definitive supportive treatment when routine orders for around-the-clock administrations of opiates or barbiturates were cancelled. Unfortunately we also encountered patients who could not get "off" depressant drugs and our continued experience with such patients remains poor.

The pain exhibited by cancer patients is a complex symptom. To some extent it has a physical basis and Barnard and Orens were able to relieve osseous pain by administration of a mercurial diuretic which probably curtailed a hypernatremic edema around the lesion.[6] True somatic pain may also be relieved by parasympatholytics[7,8] and it is curious that empirically we have employed dramamine with some success.[3] We were impressed in the latter application that

* Miltown, Wallace Laboratories, Division of Carter Products, New Brunswick, New Jersey.

dramamine seemed to curb the anxiety of some patients and we have not been among the first to suggest that there is potent, if still poorly understood psychogenic background in cancer.[9] This may explain the degree of success we and others have met by the employment of chorpromazine in cancer patients; this success is tempered by the occurrence of 4 instances of jaundice in 100 cancer patients on chlorpromazine.

Early in 1954 we obtained from Dr. Frank M. Berger an experimental supply of a new interneuronal "blocking" agent; 2-methyl-2*n*-propyl-1,3 propanediol dicarbamate for our particular application. This material, designated as "Miltown," is related to the mephenesins but it appears to be of longer durative value with a marked absence of side effects. Because of its clinically-interesting history of effectiveness in reduction of psychic, as well as skeletal muscular tension, we decided to evaluate its effect on non-operable cancer patients.

51 patients with various types of cancer currently on home care and some in terminal stages constituted our test series. All were on opiates before the study.

Results In 23 patients, response to Miltown was classified as "good." Pain was sufficiently well controlled on Miltown alone to permit discontinuance of opiates. Appetites increased and attitude and interest in objective matters improved enough to establish that continued use of Miltown was indicated.

In 14 cases, which we describe as "equivocal," the patients showed improvement on a combination of Miltown and mild opiates, but we are unable to invoke the use of Miltown alone.

The following case history is a typical example of a "good" response to Miltown by a terminal cancer patient:

Case 1 A 55-year-old housewife had acute onset of backache in October, 1954. Previously there had been massive enlargement of the left breast and axilla for which medical advice was not sought. The backache was excruciating and found to be due to metastatic collapse of the 2nd lumbar veretebra. No motor symptoms developed and the patient was given Demerol ad libitum and testosterone 300 mgm/week. Deceleration of breast intumescense was noticed but a pathologic fracture of the left femur occurred in April and testosterone was discontinued. Demerol, however, was necessary in spite of immobilization, for severe bone pain. Codeine and salicylate were also permitted ad libitum. The patient's average intake prior to institution of Miltown was 450 mgms of Demerol and 200 mgms of codeine sulfate daily.

Miltown, 400 mgm every three hours, was started on August 16 after the patient was pronounced terminal and narcotics were permitted in her own room. Within 48 hours she was definitely brighter and had ceased on her own initiative to take Demerol and codeine. Testosterone propionate 50 mgm/day was resumed on August 20 after four days of freedom from pain and anorexia. It was noticed at this time that spontaneous bowel movements be-

A spontaneous upper left humerus gan.
fracture occurred on November 1st and the patient expired (evidently from uncontrolled hypercalcemia) on 4 November.

In our limited series we have encountered no toxic effect of Miltown with the possible exception of one instance

of acneiform eruption which could have been coincidental. As observed by Selling[10] and by Borrus,[11] the soporific effects marked in some patients on initiation of administration, tend to become less with continued use, while the somnifacient effect persists and has been a most gratifying action in view of our prior difficulties with insomnia in patients who are receiving any mode of adrenocorticotherapy. We can also attest to their findings that even in the soporific phase there is little or no clouding of the sensorium and mental efficiency is unimpaired or even improved. It is also true that the somnifacient phase is quite devoid of that troublesome "hangover" characterizing depressant doses of any barbiturate.

Because of intolerance by some patients, at some times, of oral medication, we obtained from Dr. Berger experimental quantities of the intramuscular and the suppository dosage forms of Miltown. Their applications are illustrated by Cases 2 and 3.

Case 2 A forty-one year-old housewife with Hodgkin's disease has had progressive enlargement of both deep and superficial cervical nodes and axillary nodes beginning in 1953. Her general health has remained fair. The nodes initially shrank and remained small for about six months following the first course of radiotherapy in 1953 and barely improved after the second course 8 months following the first course. A fresh crop of superficial cervical nodes emerged so soon after the second course that the patient has refused further radiotherapy. The patient has been routinely having serial chest radiographs through the local tuberculosis detection center for some time. This has been on her own initiative and they have always been reported back as "negative" until the last one, in September, when she was advised to consult her physician. Small mediastinal glands were purported to have been found but reassurance was unavailing and the patient developed non-productive cough and dysphagia ("a lump in the throat") along with severe pyrosis. She claimed that pressure of any type in the epigastrium caused pain and that she

COMPOSITION AND RESPONSE OF OBSERVATIONAL SERIES (51)
THERAPEUTIC EFFECT OF MILTOWN

Number	Tumor	Good	Equivocal	None
11	Breast, osseous metastases	4	3	4
3	Cervix uteri infiltrative	1	2	
6	Colon	2	1	3
3	Fundus uteri	2	1	
1	Hodgkins, osseous		1	
1	Liver, primary			1
6	Liver, metastatic	2	2	2
2	Lung	2		
1	Nasopharynx			1
4	Prostate osseous metastases	3		1
1	Prostate, brain metastases	1		
3	Ovarian, peritoneal spread	2	1	
2	Aesophagus	1	1	
7	Stomach	3	2	2
		23	14	14

could not swallow any other than liquid nourishment as solids would "hurt going down."

In view of the real organic pathology known to exist it was difficult to dismiss these complaints as psychological and any suggestion to the patient that there might be that component, in part, was met by definite hostility. At the same time, there was constancy at good weight level, an adequate hemoglobin and the original dose of hydrocortisone, established at 20 mgm per day in 1954, was maintained. The patient claimed she could not swallow pills so that after an initial intramuscular injection of 2 cc. of Miltown (8% in 60% polyethylene glycol) by the physician, a like dose was administered before each meal by a member of the family who had previously administered insulin to another member of the family. After the fourth dose of parenteral Miltown, the patient stated that the pyrosis and epigastric discomfort had completely abated and that she was able now to swallow her whole hydrocortisone tablet without priorly crushing it and suspending it in water as she had previously done. She was reluctant, however, to attempt the larger Miltown tablets. It had by this time been determined that rectally administered Miltown* was about half as efficaceous as an equivalent intramuscular dose in producing flaccidity in rabbits, so a suppository of Miltown (400 mgm in a cocoa butter base) was given three times a day. This dose proved to be somewhat inadequate because the day of its initiation saw a return of a lesser degree of pyrosis, dysphagia and epigastric discomfort than before Miltown was started. The symptoms again abated on changing the Miltown suppository dose to two (800 mgm) morning and evening. During the first three days of this schedule, there was moderate drowsiness after each insertion; this has since disappeared along with all alimentation discomfort and the suppository insertion schedule is being continued.

Case 3 A 55-year-old patient with carcinoma of the uterine fundus, diagnosed by curettement in 1952 and with a relatively stationary course on daily administration of 25 mgm Terramycin, 20 mgm cortisone and 10mgm methyltestosterone since that time, suddenly developed right pleuritic pain and bouts of vertigo when erect; the supposition was that there had been miliary dissemination with both lung and cerebral metastasis. Repeated chest radiographics, however, revealed clear fields throughout and the cause of this incursion remains unknown. Chest pain was quite severe, but because of the relatively smooth prior course and the maintenance of appetite it was felt undesirable to start narcotics. Large doses of acetylsalicylic acid did not relieve the pain completely, though it did modify it, but did not affect the vertigo. Because the patient objected to additional oral medication, Miltown was tried in suppository form. It was found that three suppositories (400 mgm each in a cocoa butter base) a day in conjuction with the maintained dose of acetylsalicylic acid (1 gram 4 times daily) kept her free from both pain and vertigo. Attempts to reduce the dosage of either is met with recurrence of pain, as intense and inexplicable as at its onset. The vertigo has not recurred since

* Barnard, R. D., and Freeman, M. D., Unpublished Observations.

institution of Miltown.

There has been no local reaction, either inflammatory or expulsive from this insertion of Miltown, during the three weeks this schedule has been extant.

Summary

Miltown, a recently introduced propanediol derivative advocated for anxiety and tension states, has been found useful in the control of somatic pain accompanying neoplas somatic pain accompanying neoplastic disease. It is free of toxic effects, does not cloud the sensorium, and has a helpful somnifacient effect devoid of "hangover."

There is indication that the psychic factor of pain in cancer should not be underestimated in view of the good response of many patients to tranquilizing drug therapy.

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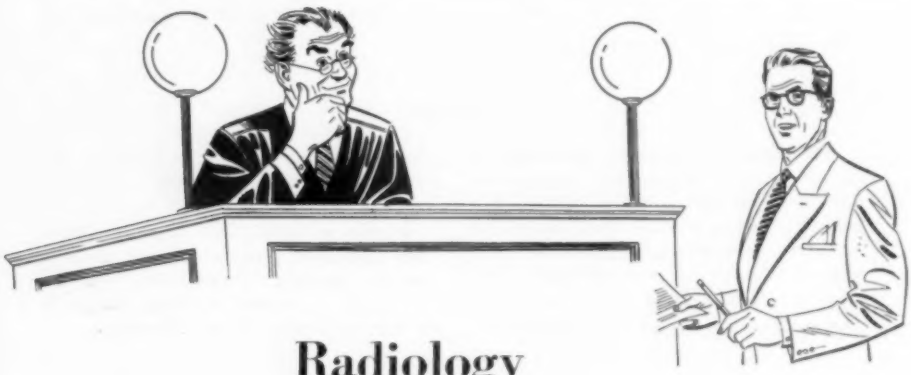
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315 Mill Road.

Clini-Clipping



Colles' fracture showing tenderness and deformity (silver-fork) over site of fracture.



Radiology and the Law

GEORGE ALEXANDER FRIEDMAN, M.D., LL.M.
New York, New York

Although the dangers resulting from overexposure to roentgen rays and the hazards of radium radiation were recognized even before the turn of the century, there still occur a surprising number of unintentional radiation injuries.

Roentgen rays are electromagnetic waves which are partly or fully absorbed into the material through which they pass. Their energy temporarily ionizes (separates atoms and molecules into electrically charged particles) the material, and is then released in the form of heat and chemical change. The chemical and biologic changes that occur are proportional to the amount of ionization produced.[1]

These x-rays are produced in a vacuum tube which contains two electrodes that are separated by a gap. The rays are emitted when high voltage electricity, which enters the tube through one electrode, jumps the gap to the other. Since the rays extend in all directions, they are surrounded by a lead tube with an opening through which they are directed on the desired target.

A thin copper or aluminum filter is generally placed across the opening to block the passage of the longer waves, and to let by the more penetrating short waves.

Other sources of radiation in medical use are radium and radon. The former emits alpha and beta particles and gamma rays. Since alpha and beta particles do not penetrate tissue to any appreciable extent, radiologists utilize the gamma rays.

Radon is a radioactive gas given off by radium and is used in the same way as radium; these affect tissue in a similar manner to x-rays.

Thorium, another radioactive sub-

stance, is used in a limited number of situations but primarily in diagnosis. Although few injuries have been reported from the injection of thorotrast or other thorium compounds into the body, it has been suggested that such long-life radioactive compounds be introduced into the tissues only in the most serious instances.[2]

Irradiation has two distinct medical functions — diagnosis and treatment. X-rays, rather than radium, are used in diagnosis because they are absorbed in different amounts depending upon the atomic composition and density of the tissues through which they pass. Because of this quality, the rays, when they emerge after passing through the body, reveal inner structures by means of varied shading on a photographic plate. Also, inner function is observable directly through the fluorescent screen. Burns should not, and do not occur frequently in diagnostic irradiation, since only low voltage (50 to 90 kilovolts) and brief exposure are required. The diagnostic burns that do occur usually do so in the course of fluoroscopy. Under a misguided concept of convenience, some physicians attempt to set fractures or remove foreign bodies under intermittent or continuous fluoroscopic vision and thereby cause radiation burns.

In treatment, irradiation involves the use of either high-voltage x-rays (100,000 to 1,000,000 volts) or radium or radon. Here there is a specific intention to effect changes in the tissues. Thus therapeutic irradiation is used in a wide variety of conditions such as cancer, skin diseases, infection, pneumonia and dysfunction of the endocrine glands.

The sensitivity of tissue to radiation varies. Generally, the most sensitive cells are the lymphocytes, bone marrow and germ cells. Those cells which are least sensitive are in the kidney, liver, thyroid, pancreas, pituitary and parathyroids. Likewise mature bone, cartilage, muscle, brain and other nervous tissue.[3] Immature and undifferentiated cells, and cells in the process of mitotic division are more radiosensitive than their mature or resting counterparts.

In most cases, radiation burns are inflicted on that tissue directly exposed to the radiation. However, heavy irradiation sometimes causes more generalized illness with symptoms of loss of appetite, nausea, vomiting and depression which symptoms may continue for a day or longer after exposure. Other reactions to a heavy dose may be blood changes of varying severity lasting for months, sterility and cancer.

Radiation burns may not be immediately observable. In some cases, a faint pinkish erythema may appear on the skin within 24 to 48 hours after exposure and then disappear. The first significant evidence of the damage, however, appears after the so-called latent period, which lasts for a week or two. The larger the dose the shorter will be the latent period and the more severe the damage. However, small repeated doses do have a cumulative effect and may ultimately cause serious injury.

Standard of Treatment The law requires that a physician or surgeon in treating a patient possess and apply that degree of skill and knowledge possessed by the average member of his profession in his own or similar communities. In the field of radiology, however, the standard is not geared to a particular community. As the court stated in a recent case, "It is a matter

of common understanding that a proper method of treating human ailments by x-ray would not vary from place to place or state to state. What is the best practice in one place would be the best in another . . . Proper use would be the same whether in New York or Texas."[4]

Proof of Injury and Negligence

The mere fact that a patient has suffered a burn after exposure to radiation is not enough to establish the radiologists's liability. The patient must show that the radiologist was negligent and that the injury was caused directly by the negligent treatment.

The Colorado appellate court recently reversed a $7,500 judgment for a patient who claimed he received a radiation burn while under treatment for a gunshot wound of the leg. The patient was unable to state whether the machine was used as a fluoroscope or as an x-ray. It was proven that the hospital possessed no fluoroscopic equipment. Further, expert testimony established that 2,000 roentgens would be required to cause the third-degree burn and the ulcer that the patient had. The court reasoned that, with the x-ray machine set as the evidence showed, about ¼ roentgen would result, an insufficient dose to cause the injury. An expert testified that the life of the tube was at most thirty minutes even if it were left on. In addition, the physicians who treated the patient's burn declined to say definitely that it was in fact a radiation burn, since it could also be due to trauma, pressure, thermal or chemical burn, contusion or thrombosis. Thus, the patient failed to prove that the burn was caused by the radiologist, and if it was, that it was due to his negligence.[5]

A distinction should be noted between liability for burns inflicted during diagnosis and during treatment. Courts generally recognize that burns should not occur during diagnosis, because the dose is of low voltage and short duration. During therapy, however, a higher voltage is used since the goal of treatment is to create a tissue change. Courts therefore proceed more cautiously against a radiologist who causes a burn during treatment, particularly if the disease is serious and death is probable.

A patient with carcinoma of the tongue came to the outpatient clinic of a hospital for treatment. An additional nodular mass under the chin had also become involved either by metastasis or direct extension. It was therefore decided to first treat the primary lesion with x-rays. The operation on the neck was to be performed later. The patient received eight intra-oral, and twelve submental x-ray treatments in the course of a month. These caused



burning of the skin and neck and inflammation of the mucous membrane of the month, both of which healed later. In addition, the primary lesion healed without sign of recurrence or metastasis. Within the next few years the patient developed radiation necrosis and acute osteomyelitis. The necrotic portion of the mandible fractured and had to be excised.

The patient charged that the radiologist treated the tongue negligently and thereby destroyed the fleshy and bony tissue of the mandible, which was not involved in the illness that was being treated. There was no expert testimony that the x-ray treatment or the manner of its administration was improper. Experts did testify, however, that the treatment was in accordance with good medical procedure and that the decisions complained of were a matter of choice and within the limits of sound medical judgment. Regarding the patient's complaint that the treatment was too drastic and extensive for the size of the cancer, the court stated: "In fighting so dangerous a condition as here involved, physicians may take serious risks and in doing so must rely on their judgment in deciding how far to go. . . . To hold them responsible in the cases where the bad chance unfortunately materializes would be evidently unjust and most dangerous if physicians were deterred from going to the extent which gives their patient the best chance of survival."[6] The patient lost the case.

Res Ipsa Loquitur. A court may apply the legal doctrine of res ipsa loquitur (the thing speaks for itself) on behalf of the patient when certain conditions are met. These are, that the patient is injured in a manner which he cannot explain, without his fault, by an instrument under the exclusive control of the physician, and the injury is such that it ordinarily does not occur without negligence on the part of the physician. The effect of applying this doctrine is that the burden is thrown on the physician to show that he was *not* negligent. The courts of the various states do not all agree that the doctrine should apply to injuries sustained both in diagnosis and treatment. It appears reasonable to infer that burns do not occur during diagnosis unless the radiologist is negligent. However, this inference is not so reasonable in the case of therapy, since the intention is to "burn" the tissue. Nevertheless, a court that will not apply res ipsa loquitur in a therapy case, will probably make exceptions in some situations. Thus, for example, a patient who received burns on his scalp, face and neck while having a wart removed from his ear with x-rays, was given the benefit of the doctrine.[7]

Hypersensitivity Radiologists in defending themselves in malpractice suits have defended the injury by alleging that the radiation injury was due to the patient's hypersensitivity rather than negligent treatment. As a New York court once stated: "There are a few people probably not more than one out of every 200 or 300 who are supersensitive to x-ray treatment, and apparently that disposition of the patient cannot be known in advance of the test of actual treatment and its results. Such cases are so rare that evidently physician and patient have to take that risk—the one in administration, and the other in receiving the treatment."[8] The question of the cause of injury is one to be decided by the jury on the basis of expert testimony. A patient sued a derma-

tologist who removed a growth from the patient's heel by means of x-rays. The growth fell off, but a third degree burn appeared on the site of the lesion. The patient's case was dismissed for failure to prove that the physician was negligent. In addition, the expert testifying for the patient admitted that, even with the exercise of care and skill, burns will occur, because some persons are more sensitive to x-rays than others, as in the case of sunburn.

Reproductive Organs. The ovaries and testicles are highly sensitive to irradiation, and sterility can occur in either sex by a single overdose or by repeated smaller doses of x-rays or radium radiation. A dose of 500 roentgens directed to the ovaries is usually enough to cause permanent sterility. The sterilizing dose for men has not yet been determined accurately, but it is probably smaller than for women.[9] Because of the importance to the organs of reproduction, for injuries of this kind juries generally award large sums.



A patient won a verdict of $29,125 from a general practitioner for damage caused by treatment of a skin infection of the scrotum. After two separate courses of x-ray treatment, the condition cleared up. It reappeared later, and the physician began a third course lasting three weeks and administered every weekday. The office records showed that the machine was set at 80 kilovolts, 5 milles, 15 inch distance, two minutes time. A cancer specialist and two radiologists testified as follows: the testicles have atrophied and must be removed; the patient is suffering from radiodermatitis; he will be sterile and will ultimately develop cancer. They also stated that the x-ray treatment given was not justified. The first form of treatment for a skin disorder should not have been irradiation. It was especially dangerous around the testicles. Proper treatment in this case would not have exceeded 75 roentgens per week; the giving of over 100 roentgens per day was negligent, and no skin disease justified such a dose.[10]

Equipment Radiology equipment must be inspected at reasonable intervals and kept in good working order. A hospital and the head of its radiology department were recently sued successfully for failing to fulfil this basic responsibility. The head of the x-ray machine fell on the patient's head when one of the two clamps that hold the counter-balancing weight to the cable became detached. The defendants were held liable because they used the machine daily, sometimes as much as six times per day. They could have inspected the clamp and weight in less than thirty minutes, yet they failed to do so even once during the three years

that they owned the machine. An expert testified that the clamps can loosen and become separated from the machine by constant use.[11]

Children of Irradiated Parents Although normal children are born to pregnant women who have received heavy doses of pelvic radiation, there are a large number born with malformations of the central nervous system, eyes and limbs. This is particularly true when the irradiation occurred during the early months of pregnancy. Death of the fetus and abortion generally follow the exposure of the uterus to two or more skin erythema doses of x-rays during the first four months of pregnancy.[13] The effects are less predictable in cases of smaller doses or where the radiation is administered in the later months of pregnancy. It is believed that the amount of radiation used in diagnostic procedures is generally not harmful to the fetus. In all states the mother can recover damages for her own injuries, pain and suffering, and medical expenses resulting from a miscarriage caused by a radiologist's negligent treatment. In regard to the rights of the unborn child, the two states that have been confronted with the question have ruled that he cannot sue after birth for radiation injuries suffered while in the uterus.[14]

There is no conclusive proof that irradiation of either parent before conception will cause any defect or abnormality in a child later conceived.

Liability of Hospital, Radiologist, and Technician The liability of a hospital for the negligent acts of its radiologist depends upon the degree of control the hospital exercises over the radiologist. Thus, a radiologist who paid the hospital rent for his offices and was not in its employ, was liable for the negligent acts of the hospital technicians who acted under his exclusive control and direction while operating the x-ray machine.[15] The radiologist is then considered an independent contractor and the hospital is not liable unless it can be shown that the hospital did not exercise ordinary care in selecting the radiologist. When the x-ray department is an integral part of the hospital and under its control and management, a court will then tend to call the radiologist an agent of the hospital and hold the hospital liable as well as the radiologist.[16]

X-ray technicians are considered servants or employees of the hospital or the radiologist in private practice. Therefore, whoever employs them or uses them under his exclusive control or direction is liable for their negligent acts.[17]

Ownership of X-rays When the patient himself arranges the taking of x-rays at a private laboratory and then delivers them to his physician for diagnosis, he is the owner of the films. However, when a dentist or physician takes x-ray for his own diagnosis they belong to him, despite the fact that he charges the patient for them. X-rays taken at the hospital belong to the hospital just as the other records of the patient's treatment.[18]

Summary

1. Irradiation is a potentially dangerous procedure which must be exercised with extreme care. X-rays and thorium radiation are

used in diagnosis; x-rays, radium radiation and radon are used in therapy. Causing a radiation burn is not alone a basis for liability; it must be caused by negligent treatment.

2. The standard of treatment to which a radiologist is held is uniform throughout the country and is not measured by the standard of practice in his community.

3. The sensitivity of tissue to radiation varies. The hypersensitivity of a patient to irradiation may relieve a radiologist of liability. The organs of reproduction are highly sensitive to irradiation, and juries award large verdicts for any damage to them.

4. Courts generally recognize that burns should not occur during diagnosis because the dose is of low voltage and short duration. During therapy higher voltage is used to create tissue change. Thus courts proceed more cautiously when the burn was caused during treatment particularly if the disease is serious and death is probable.

5. Radiological equipment must be inspected at regular intervals. The hospital and the radiologist are liable for injuries caused by equipment which is not kept in working order. The liability of the hospital for the acts of its radiologist depends upon the degree of control the hospital exercises over his practice.

6. The mother, but not the unborn child, can claim damages for certain injuries to the fetus. There is no conclusive proof that children born of parents who were irradiated before conception suffer any abnormalities.

7. Roentgenograms belong to the patient if he procures them independently; otherwise they belong to the physician or hospital.

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133 E. 58th Street

Clinico—Pathological Conference

Walter Reed Army Hospital, Washington, D. C.

Patient: White married female, 43-year-old.

Past History: Patient did not smoke or drink; had the usual childhood diseases; denied serious adult illnesses; no serious injuries.

History of Present Illness: The patient was in good health until approximately three years prior to present illness, at which time she noted increasing irregularity of menstrual periods and associated cramping suprapubic pain.

In January 1954, an adnexal mass was felt on the left and an exploratory laparotomy was done. A large ovarian mass was found and a total abdominal hysterectomy, bilateral salpingo-oophorectomy and appendectomy was performed without any technical difficulty.

The pathological diagnosis of the ovarian tumor was papillary serous cystadenocarcinoma. The malignancy involved both ovaries. Tumor implants were reported on the peritoneal surface. During that hospitalization, the patient's blood pressure was recorded as 126/80.

One month after the operation, the patient was transferred to Walter Reed Army Hospital where her blood pressure was again recorded at 126/80 and her BUN was 10 mgm. percent. At that time vaginal examination revealed thickening of the walls of the vaginal vault. There was a question as to whether this was due to a spread of the malignancy or postoperative fibrosis. However, it was felt that in any case radiation therapy was indicated. The patient was given 4000 R. total dose of x-ray radiation to the entire abdomen over a period of 91 days, finishing May 1954. Six weeks following the end of her course of x-ray therapy, she had no serious complaints. Her blood pressure was 158/88.

She was next seen as a medical emergency in November 1954 complaining of difficulty in breathing and a heaviness in her chest. Chest x-ray showed increased hilar markings and, on physical examination, there were scattered rales heard in the right apex. The patient was hospitalized.

Physical Examination: A well developed, well nourished white female who was acutely ill. Blood pressure, 210/100; pulse, 120, regular; respirations, 36; moist rales in both lung bases. There was a Grade II apical systolic murmur present and a precordial friction rub. The liver and spleen were not palpable. The lower abdominal

wall showed the scar of her previous hysterectomy and there was induration and increased pigmentation over the irradiated areas. No masses were palpated. Pitting edema was noted over the sacrum and the extremities.

Laboratory Data:

Blood: The white blood cell count was 5,400 per cu. mm. with 84 percent neutrophils and 16 percent lymphocytes; hemoglobin was 10.4 grams. Hematocrit 31. Corrected sedimentation rate 35 mm.

Urinalysis: Specific gravity, 1016; albumin, 2 plus; sugar, negative; acetone, 1 plus. Microscopic: 1-2 hyaline casts; 4 fine granular casts; 22-26 white blood cells; 8-11 red blood cells per high power field. BUN, 25 mg.%; CO_2 combining power, 24.4 volumes %; chlorides, 104 meq.; sodium, 125 meq.; potassium, 4.5 meq.; total protein, 5.3 grams %.

Bone Marrow: Showed erythroid hyperplasia.

X-rays: Revealed a slightly enlarged cardiac silhouette. The previous evidence of pulmonary congestion disappeared. Skeletal survey showed no metastases. Barium enema was negative.

Electrocardiograms not revealing.

Course in Hospital: The patient was given a transfusion of whole blood. Following this, she developed acute pulmonary edema with severe shortness of breath, rapid pulse, and blood pressure of 200/110. It was noted at this time that there was spasm of the retinal arterioles with one fresh retinal hemorrhage. Tourniquets were applied to the extremities; and positive pressure oxygen and aminophylline IV were given with improvement. Digitalization was begun. The pericardial friction rub was still heard. Her BUN was 25 mg.%; potassium, 4.5 meq.; sodium, 125 meq.; chlorides, 104 meq. The urine showed a persistent albuminuria with many red blood cells and white blood cells.

One week following hospital admission the patient developed neck rigidity and mental confusion. A lumbar puncture revealed bright red spinal fluid under a pressure of 300 mm. of water. After removal of 7-cc., the pressure dropped to 266. Clotting time, prothrombin time and platelet count were all within normal limits. She was started on antibiotics. The patient's hematocrit continued to fall rapidly and she was transfused frequently with packed red cells. Her condition improved and her sensorium cleared. Spinal tap was repeated three weeks later. The initial pressure was 128 mm. The fluid was xanthochromic.

A Regitine test, done because of the severe elevation of the blood pressure, was negative for pheochromocytoma.

The patient had continually increasing edema coupled with albuminuria and an increasing BUN. She also complained of swelling of the breasts and abdominal distention. There was a questionable fluid wave and shifting abdominal dullness. Her appetite was very poor and she had occasional nausea and vomiting. Two days prior to her death, a severe low back pain developed and rather large amounts of narcotics were required for relief. The BUN had risen to 152 on that day and during the evening she had a convulsion with cyanosis and cessation of respirations for approximately 30 seconds. The pulse became weak and ir-

regular. Respirations recommenced after administration of positive pressure oxygen. The blood pressure remained at 180/100. She developed nuchal rigidity and was not responsive. Throughout the next 24 hours, she remained semi-stuporous. She died without regaining consciousness.

Pathological Findings

At autopsy, edema of the lower extremities and an effusion into all serous cavities were present.

There was no sign of tumor anywhere. The other significant observations were as follows:

The heart weighed 430 grams and revealed a left ventricular hypertrophy.

The brain weighed 1,140 grams. There was mild xanthochromia of the meninges associated with the recent subarachnoid hemorrhage.

The kidneys each weighed 150 grams. The capsules stripped with ease revealing a smooth brown surface with numerous fine pin-point hemorrhages. On cut section the surface bulged somewhat. The corticomedullary demarcation was sharp and the cortex had a finely granular surface with hemorrhagic foci. Microscopically, the kidneys showed the changes usually associated with "malignant hypertension," namely: (1) tuft necrosis with or without proliferation of the epithelium of Bowman's capsule or of the tufts; (2) continuity of this necrosis into the afferent arterioles; (3) this arteriolar necrosis consists of replacement of the muscular wall with an eosinophilic granular material which narrows the lumen; (4) hemorrhage and an occasional neutrophil; (5) the interlobular arteries show an intimal proliferation in fine concentric layers. In addition, there was some increase in the interstitial fibrous tissue.

While the possibility of a spontaneous "malignant hypertension" cannot be excluded, the close correlation of history and physical findings with the cases reported by Kunkler et. al., makes a diagnosis of "radiation nephritis" tenable. Kunkler reports the findings of these vascular changes after 2000-2500 R. to both kidneys. The critical factor appears to be the inclusion of the entire mass of both kidneys in the field. Sparing only a part of one or both kidneys will protect against injury.

This clinical course parallels that claimed to characterize post-irradiation renal damage. There is first a latent period of 6-12 months following abdominal x-radiation. The first complaints are fatigue, dyspnea on exertion, headache and swelling of ankles. Anemia, edema of all grades and hypertension are usually found on examination. Some retinal changes occur and, in the advanced stages, cardiac enlargement with failure is invariably present. The anemia is quite refractory and not due to aplasia of the marrow. Urinary findings consist of albuminuria of varying degree with occasionally, granular and/or hyaline casts and red blood cells.

Most patients die within a few months

of onset of symptoms, death being due to uremia or left ventricular failure. Some recover from the acute phase and are left with signs of chronic renal disease.

Some patients have no symptoms but kidney damage could be found by laboratory examination. These have albuminuria, hypertension and impaired renal function.

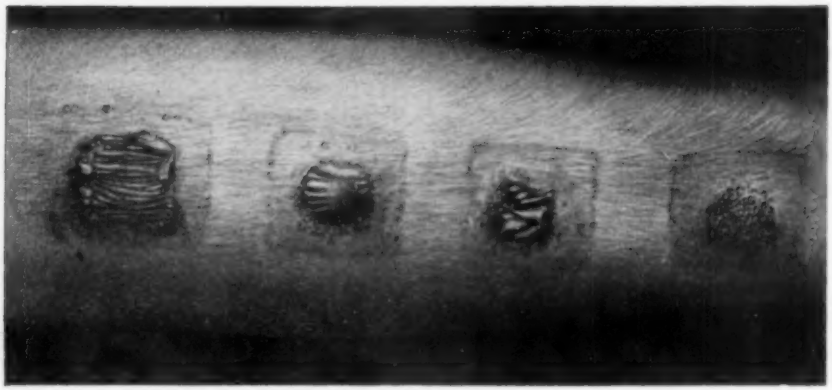
Kunkler and his associates conclude that "renal function and exact location of the kidneys should be determined before x-ray treatment of the abdomen is undertaken. Unsuspected ectopic and solitary functioning kidneys may be discovered and may demand modification of a standard technique."

Similar renal changes have been reported in animals following radiation.

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This month's Conference was prepared by Major Robert W. Morrissey, U. S. Air Force resident on duty at Walter Reed Army Hospital. Major Morrissey also performed the autopsy.



Results of patch tests on forearm of patient hypersensitive to iodine. The Concentrations from left to right were 1/2, 1, 1 1/2, 2 per cent iodine (after Becker and Obermayer).

Salivary Calculi

Calculi are common in the ducts of the submaxillary glands, but are rare in the ducts of the other major salivary glands, the parotids and the sublinguals. They must be found in the ducts and/or the glands themselves.

Anatomy The major salivary glands are six in number—three on each side. The *sublingual* is the smallest, and lies just behind the symphysis of the mandible, on top of the mylohyoid muscle. It has several small ducts opening separately into the mouth under the tongue; the main duct enters the mouth with the submaxillary duct (Figure 1).

The *submaxillary* is larger and lies behind and alteral to the sublingual, both above and below the edge of the mylohyoid. Its secretion runs in the long submaxillary duct of Wharton, which opens into the mouth at the sublingual caruncle adjacent to the frenulum of the tongue (Figure 1).

The *Parotid* lies on the masseter muscle just anterior to the ear. Its secretion is carried in Stenson's duct, which traverses the cheek and opens into the mouth opposite the upper second molar tooth (Figure 1).

Etiology Infection is usually considered the cause of salivary calculi, calcium salts being deposited around a bacterial nidus as a result of a change in the pH. Various organisms, including saprophytic actinomycetes, have been isolated from calculi. Trauma and foreign bodies, with their resultant inflammation, may also be responsible for the development of stones.

Symptoms Although the symptoms are characteristic, the condition is often misdiagnosed as lingual neuralgia, toothache, lymphadenitis, cancer, etc.

A stone in the duct may cause complete or incomplete obstruction, usually of an intermittent nature. Obstruction of the duct causes a backing-up of the secretions, with distention of the duct and gland. This results in pain, which may be colicky, and a palpable swelling in the region of the gland (Figure 2).

The symptoms are most marked at mealtimes when there is functional engorgement of the gland. Citrus fruits stimulate an excessive flow of saliva, and often produce marked symptoms. With intermittent obstruction, salty saliva is often discharged into the mouth with subsequent relief of symptoms.

If the obstruction persists, a diffuse enlaregement of the gland results, from fibrosis and lymphocytic infiltration.

Diagnosis Examination during an attack of pain reveals a tender swelling along the course of Wharton's duct on the involved side. The gland, too, is commonly swollen. There may be purulent drainage from the duct, and

the orifice (sublingual caruncle) may be reddened.

The stone usually lies in the anterior two-thirds of the duct, and can be easily palpated along the course of the duct if one finger is placed inside the mouth and the other hand is placed under the jaw to push the floor of the mouth upward.

Since most salivary calculi are radiopapque, x-rays usually reveal their presence and position. Several views, taken through the mouth and from the outside, are often required (Figure 3).

Sialography is often of help in locating stones that are not readily seen on routine x-rays. The duct and its ramifications within the gland are visualized by x-rays taken after the injection into the duct orifice of two to three cubic centimeters of Lipiodol by means of a syringe and cannula.

Differential diagnosis should include stricture of the duct, Mikulicz's disease, inflammation of the gland (sialadenitis) without stone, Boeck's sarcoid mixed tumors (most common in the parotid, but occasionally involving the submaxillary and sublingual glands), and neoplastic involvement of the submaxillary lymph nodes.

Treatment Removal of the calculus is the treatment of choice. This is easily accomplished if the stone is large and is in the anterior two-thirds of the duct. Procaine or Xylocaine is infiltrated into the region of the duct for anesthesia.

An incision through the mucous membrane and duct is made over the stone, in line with the duct. The stone is lifted out, and the duct is irrigated. The mucous membrane may be sutured with fine silk, or preferably, left open. In the presence of infection, the wound should always be left open. Warm mouth washes are advisable for three to four days. In most cases only a

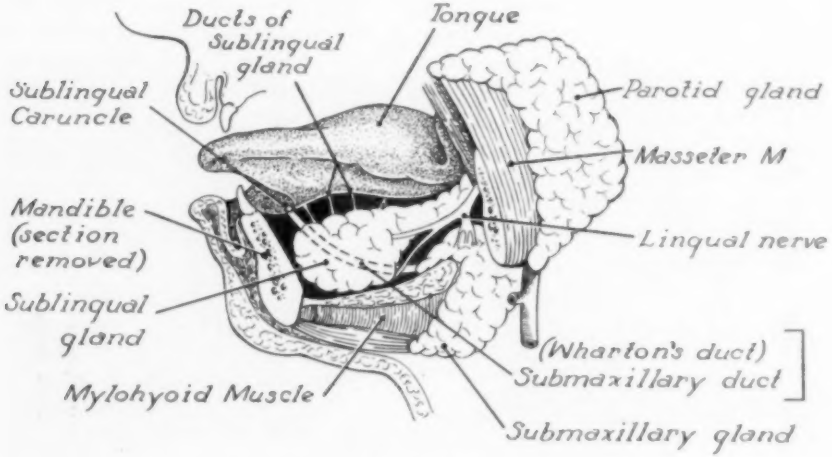


Figure 1

Schematic drawing of major salivary glands showing their location (part of parotid gland and Stenson's duct not shown).

little sedation is needed post-operatively.

If the stone is small and movable, it is advisable to place a suture around the duct on the gland side of the stone, and pull up on this to occlude the duct and prevent the stone from slipping back toward the gland during removal. The suture is cut out at the end of the procedure.

Another useful method of removal of a stone close to the orifice of the duct is to place two #000 silk sutures in the duct wall at the orifice. These are held taut and the duct is opened with a fine scissors from the orifice back to the stone.

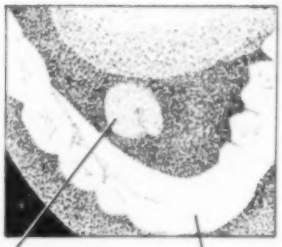


fig. 3

Drawing of x-ray, showing large calculus in right submaxillary duct (Wharton's duct).



fig. 2

Appearance of patient with swelling of right submaxillary gland.

A stone in the parotid duct is removed in the same manner, with incision through the buccal mucosa and duct over the stone.

A stone in the posterior one-third of the duct or in the gland, if symptomatic, necessitates excision of the gland through an external incision. This should not be attempted in the office, because of the vascularity of the area, and the vital structures in relation to the gland. Hospitalization is essential for a safe operation.

Dilatation of the duct by means of graduated tear duct probes will occasionally stretch the duct sufficiently to permit the stone to pass out through the orifice, but surgical excision is usually more satisfactory.

EDITORIALS

Peaceful Uses of Atomic Power

Government monopoly of atomic energy for weapons must not be allowed to extend itself into the field of its peaceful uses, particularly in medicine. We must be especially cautious with respect to government "assistance" with its danger of control over facilities and personnel.

Fortunately, all the expert authorities concerned in this matter seem to be well aware of the possibility of attempted control over medical practice and research, and to be prepared to resist it. At the same time they expect that all medical schools shall be provided with adequate facilities for training in atomic medicine techniques; that additional research centers shall be created with all appropriate equipment, including reactors; that there shall be designed and provided as rapidly as possible low-cost atomic medical equipment for all the hospitals and clinics lacking such needed equipment; that there be made available at fair prices the radioactively labeled organic compounds essential for research and therapy; and that prompt availability of current atomic developments in the field of medicine and medical research be assured, with opportunity for full interchange of latest data without interference with independent investigators. Secrecy, essential in the military field, has no ethical place in medicine.

Perhaps

The high degree of atmospheric pollution in this country affects nearly half of the population, according to the Air Pollution Foundation. The menace of smog is a very serious matter. It is not an isolated problem of Los Angeles, Chicago and New Orleans, for 40 per cent of the 76,000,000 residents of affected areas live in Massachusetts, Rhode Island, Connecticut, New York, New Jersey and Pennsylvania.

It is the burning of fuel—coal, oil, gasoline and gas because of the increasing concentration in industrial areas of man and his machines that pollutes the urban air we breathe. It is the cities

which present the highest incidence of lung cancer.

Our mechanization is costly in terms of crop damage, corrosion and deterioration of metals and other materials, smog-caused laundry bills and the cleaning of buildings, furnishings and automobiles, as well as in terms of health.

Perhaps the peaceful uses of atomic energy in place of the old filthy industrial techniques will change the picture.

Research Developments

The year 1955 has seen the introduction of more than 550 new drug products. It is being said, on the basis of such statistics, that "Americans this year will be enjoying better health and medical treatment than ever before." We agree with the view regarding better health in prospect, but to ascribe it wholly or even largely to drugs seems a bit naive, any more than to believe that a doubling of hospitals should necessarily be taken to indicate the mastery of disease. And not many of the new drugs would have the potentiality of the Salk vaccine or the promise of some of the new agents, such as prednisone and prednisolone. Let's hold our hats and keep our heads, lest perspective becomes distorted.

Housework Trauma

The energy expended by many women in doing their housework is largely avoidable. According to the Home Economics Department of Wayne University and the Michigan Heart Association seventy-five per cent is unnecessary. This conclusion is based upon a study of every movement made by a group of housewives. A single meal, for example, required 500 steps, a dozen stoppings, and reaching up forty to fifty times.

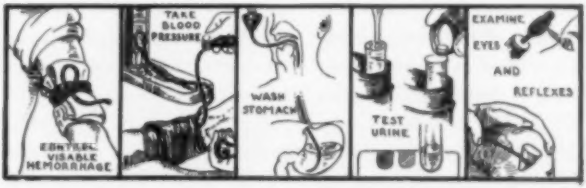
The Wayne economists blame poor arrangement of equipment, lack of foresight in working methods, and surrender to architects and designers who build ill-adapted kitchens.

Shelves at shoulder and elbow levels are recommended. When too high or too low the strain may be doubled.

Eye fatigue is a factor (25%). The time-motion studies seem not to have considered stairs.

These studies obviously have a bearing upon household trauma as a factor in setting the stage for arthritis, so often initiated in the knees.

Clini-Clipping



Emergency treatment of coma.

MEDICINE

MALFORD W. THEWLIS, M.D.*

Lactobacillus Acidophilus Tablets in the Therapy of Various Intestinal Disorders: A Preliminary Report

Asher Winkelstein (*American Practitioner and Digest of Treatment*, 6: 1022, July 1955) reports the treatment of 57 patients with various types of intestinal disorders by the administration of tablets containing viable *Lactobacillus acidophilus* (100 billion organisms per three tablets). As a rule three tablets were given daily for six to eight weeks, then discontinued for two to four weeks, and another course of treatment given for four to eight weeks; in a few cases a larger dose (nine to twelve tablets) was employed. There were 26 cases of chronic constipation without organic disease treated; in 24 of these cases, not only was the constipation relieved but there was definite improvement in the odor, color and form of the feces. Of five cases of diarrhea treated with the tablets, the diarrhea was entirely relieved in 4 instances; 4 cases of mucous colitis with alternating constipation and diarrhea were completely cured, but no relief was obtained in 5 cases of so-called "non-specific" ulcerative colitis. In 3 cases of sigmoid liverticulitis with abdominal pain and constipation or diarrhea, the tablets gave definite relief; 7 cases of "antibiotic colitis" (following administration of antibiotics by mouth) were all relieved of symptoms in one to three weeks, but the administration of the tablets was continued for several weeks longer to prevent recurrence; 3 cases of megacolon, with constipation, also responded well to the treatment. Two cases of rheumatoid arthritis and one case of "unexplained vertigo" showed no response to acidophilus therapy. As the patients treated were private patients, bacteriologic studies of the feces were not attempted, but gram stains of the feces were made before beginning



Thewlis

*Attending specialist in general medicine United States Public Health Hospitals, New York City; consulting physician, South County Hospital, Wakefield, Rhode Island; special consultant, Rhode Island Department of Public Health.

the acidophilus therapy, and every two weeks during treatment; before treatment the fecal flora was gram-negative, but became gram-positive in 88 per cent of the patients during treatment. As the gram-positive organisms were found to be rods and not cocci, the author considers it "highly probable" that they represent *L. acidophilus*. Further trial of this method of treatment with additional "bacteriologic, radiographic, physiologic and clinical approaches" is planned.

COMMENT

This is a valuable subject of investigation. The use of tablets is very interesting and much easier than cultures which are made in fruit juices. That they are effective in some instances is without question. There are some observers who are using the acidophilus cultures when the urine test for indican is positive.

M.W.T.

The Treatment of Angina Pectoris with a Nitroglycerin Ointment

J. A. Davis and B. H. Wiesel (*American Journal of the Medical Sciences*, 230:259, Sept. 1955) report the use of a 2 per cent nitroglycerine ointment applied to the chest wall in the treatment of 17 cases of angina pectoris, in addition to all other measures used in the treatment of these cases, including nitroglycerine tablets sublingually. The ointment is applied over an area of the chest wall 5 to 8 inches in diameter; the dosage used at first is one-half inch of the ointment applied three or four times a day; the dosage is varied, as indicated, by increasing the length of the "ribbon" of ointment to three-fourths of an inch or more, or by decreasing it; the dosage is calculated as 15 mg. of nitroglycerin in an inch of the ointment. At first a specially prepared ointment was used, more recently a commercial product, Nitrol Ointment. Of the 17 patients treated by this method, 9 showed a definite decrease in the number of anginal attacks; 4 other patients who did not show any definite decrease in number of attacks, reported a "general feeling of well-being"; 4 showed no response to the treatment. A sudden withdrawal of the ointment has resulted in more severe coronary insufficiency, indicating that the ointment has "a marked vasodilating effect." The value of the ointment in addition too ther measures in the treatment of angina pectoris, is due, in the authors' opinion, to the slower absorption and "resulting prolonged action of an effective coronary vasodilator." Illustrative cases are reported.

COMMENT

It will be interesting to note what ointment base was used with nitroglycerin. Did it contain oleates or oleic acid? It is barely possible that the absorption from the skin from nitroglycerin would be influenced by the ointment base. The treatment is interesting.

M.W.T.

Treatment of Viral Hepatitis with the Knott Technic of Blood Irradiation

R. C. Olney (*American Journal of Surgery*, 90:402, Sept. 1955) reports the treatment of 43 patients with viral hepatitis with blood irradiation by the Knott technique; 31 of these cases were acute infections hepatitis, 3 of which were recurrent, and 12 acute serum hepatitis. For this method of treatment 1.5 cc. of the patient's blood per pound of body weight is withdrawn, citrated and exposed to radiation with Knott hemo-irradiator and returned to the patient through the same needle. The average number of treatments per pa-

tient was 3.28. The treatment resulted in a rapid relief of symptoms, including jaundice; and the laboratory findings also showed a return to normal as clinical improvement occurred. Twenty-seven patients showed marked improvement within three days or less after the first blood irradiation treatment; 11 showed marked improvement in four to seven days; and 5 in eight to fourteen days. The average period required for complete recovery was 19.2 days. There were no deaths; and in a follow-up period averaging 3.56 years, there were only 2 recurrences; as one of these recurrences occurred in a patient who was a heroin addict, reinfection, rather than a true recurrence, was suspected. There were no unfavorable reactions to the treatment noted in any case. As recent statistics indicate an increase of more than 300 per cent in the incidence of viral hepatitis in the past three years, the results of treatment by the method described is to be regarded as "significant and noteworthy."

COMMENT

I have seen this treatment used especially in infections which are usually not amenable to treatment with other methods. I have seen quite remarkable results from it in pneumococcal infections but have not observed it in the viral infections. My own impression is that the treatment could be used in infections which are not easily influenced by treatment with penicillin or antibiotics.

M.W.T.

Successful Short-Term Therapy of Streptococcal Endocarditis with Penicillin and Streptomycin

Buford Hall and associates (*American Journal of the Medical Sciences*, 230:73, July 1955) report the treatment of 15 patients with subacute bacterial endocarditis by the intramuscular injection of penicillin and streptomycin for ten to seventeen days. The underlying heart disease was rheumatic in 11 of these patients. Blood cultures showed an alpha streptococcus in 10 cases and a gamma streptococcus in 5 cases; in all but 2 cases the streptococci isolated were sensitive to 0.1 unit of penicillin or less per cc. in sensitivity tests by the tube dilution method. The usual dosage was 600,000 units of aqueous procaine penicillin G at six-hour intervals for ten days, with streptomycin or a combination of streptomycin and drhydrostreptomycin given concurrently in a dosage of 0.5 gm. every six hours for five days and every twelve hours for another five days. Some patients were given additional amounts of penicillin, usually either before or after the course of combined therapy, and 3 patients were given additional streptomcyin. Two patients died while hospitalized, and another continued to have fever and required another course of penicillin in larger doses. Twelve patients were rendered afebrile and apparently cured of their infection by the short-term course of treatment, and 11 of these are living and without signs of infection for periods varying from four to thirty-eight months after completion of treatment, although 3 have some limitation of physical activity due to the underlying heart disease.

COMMENT

Interesting observations. The results were apparently excellent.

M.W.T.

Sodium Cinnamate as a Salicylate Additive for Control of Pain in Arthritis and Rheumatism

T. M. Feinblatt and E. A. Ferguson, Jr. (*New York State Journal of Medi-*

cine, 55: 1891, July 1, 1955) report the use of sodium cinnamate in addition to sodium salicylate in several groups of arthritic or rheumatic patients in the chronic state of the disease with painful joints. One group of 14 males and 26 females was treated with 5 grain tablets containing 150 mg. sodium salicylate U. S. P. and 25 mg. of sodium cinnamate; two tablets were given three times daily for a period of eight weeks. After this course of treatment, 11 of the 40 patients were entirely relieved of pain; 27 had partial relief, and only 2 no relief. There was limitation of movement of the affected joints in 37 of these 40 patients; after the course of treatment there was complete restoration of movement of the joints in 14 patients, partial restoration in 24 cases, and no change in 2 cases. In another group of 28 patients (15 males and 13 females), half the patients were given the sodium cinnamate with sodium salicylate tablets for six weeks; then no treatment was given for a month; and after this rest period, each patient was given the alternate medication. After treatment with sodium salicylate alone, 8 patients had complete relief of pain, 12 had partial relief, and 8 no relief. After treatment with the salicylate-cinnamate compound, 10 patients had complete relief of pain, 15 partial relief, and only 3 no relief. Motion in the affected joints was completely restored in 15 patients by sodium salicylate alone, and in 21 patients by the sodium-cinnamate compound; motion was partly restored by sodium salicylate alone in 4 cases, and by salicylate-cinnamate compound in 3 cases; there was no restoration of movement in 9 cases with sodium salicylate alone, and in 4 cases with the sodium-cinnamate compound. Another group of 56 patients was treated with 7-grain tablets, containing sodium salicylate U. S. P. 150 mg., sodium cinnamate, 25 mg., acetophenetidin, U. S. P., 150 mg., and sodium bicarbonate, U. S. P., 60 mg. In this group, 35 per cent had complete relief of pain, 54 per cent partial relief, and 11 per cent no relief. Restoration of movement of the affected joints was complete in 75 per cent of this group and partial in 10 per cent, with no restoration of movement in 15 per cent. It was noted that the duration of relief was greater after a single dose with this compound, attributed to the use of acetophenetidin. Results were still further improved by the use of physical therapy—the hot sulphur bath—with this compound.

COMMENT

This treatment will bear further investigation. M.W.T.

SURGERY

BERNARD J. FICARRA, M.D.*

Gastric Resection with Exclusion of the Complicated Duodenal Ulcer

J. W. Baker and associates (*Annals of Surgery*, 142:519, Sept. 1955) report 278 cases of duodenal ulcer in which gastric resection was done; in 156 cases, the duodenal ulcer was resected and in 122 the ulcer was excluded. As a rule the ulcer in the cases in which it was excluded was larger and deeper than in cases in which it was resected, and the surgical problem was more difficult. In these cases of exclusion of the duodenal ulcer, the duodenum was transected distal to the pylorus, with care not to extend the transection into the pancreas. If the duodenal ulcer was posterior and perforating and the pancreatic capsule thickened, fine interrupted silk sutures were employed to approximate the anterior wall of the duodenum to the pancreatic capsule and the margin of the ulcer, thus inverting the mucosal edge without suture; the duodenal omental appendage was used for coverage. If the duodenal ulcer did not have a large crater, as in some cases of hour-glass contracture of the duodenum, the stricture was transected and ulcer closed with silk sutures. Of the entire series of 278 cases, 84 per cent have been followed up for two to fourteen years. In the group treated by resection, the average age of the patients was fifty-one years, and in the group treated by exclusion was 52.7 years; resection was done in a larger number of patients in the sixth decade of life and exclusion was done in a larger number of patients in the eighth and ninth decades. The duration of ulcer symptoms was longer in the patients in whom the exclusion operation was done. The indications for surgery, including obstruction, perforation and hemorrhage, were essentially the same in the two groups. There were 3 deaths (1.9 per cent) in the group in which resection was done, and one death (0.8 per cent), in the group in which exclusion was done. Postoperative complications were somewhat more frequent in the cases in which resection was done, including leaking stump in 2 cases responsible for the death of these 2 patients. Of the 234 patients followed up for two to fourteen years, 134 were in the resected group and 104 in the exclusion group. The incidence of the "dumping syndrome" was about the same in the two groups; this syndrome was usually of the mild type and not disabling in any case. The relief of symptoms was satisfactory in both groups; there were 4 recurrences in



Ficarra

* Diplomate American Board of Surgery; Director of Surgery, Roslyn Park Hospital, Roslyn Heights, N. Y.

each group, one in each group requiring re-operation, and the others responding to medical treatment. The authors conclude that the satisfactory results obtained indicate that the exclusion operation is preferable to resection "in certain duodenal ulcers treated by subtotal gastrectomy."

COMMENT

These authors have performed a great service to surgeons in calling attention to the fact that it is better to leave an ulcer in situ than remove it and obtain a complication which may terminate in a mortality. I firmly believe that when the surgeon encounters an ulcer which in his opinion is perilous to remove he should perform an exclusion operation and not feel that he has been defeated in his attempts to do complete surgery. In my own experience the end results are equally satisfactory with removal of the ulcer or exclusion of it. The only exception in my experience has been in bleeding ulcers. Patients with bleeding do not have as favorable prognosis if exclusion procedures are performed. Such patients do better with removal of the ulcer.

B.J.F.

The Exposure Method of Burn Treatment

C. E. Wilson and associates (*A. M. A. Archives of Surgery*, 71:424, Sept. 1955) report the use of the exposure method in more than 50 burns of second and third degree; this method was not used for small burns that could be closed, nor in extensive circumferential burns. In other cases, the patient was placed on his back or abdomen, according to the location of the burn; if the burn showed gross contamination and devitalized tissue, it was washed gently with hexachlorophene soap solution, followed by saline irrigation. This was done in practically every case under analgesia without general anesthesia. Burns treated by the exposure method developed a firm dry eschar in about seventy-two hours; this eschar was dry and adherent; with full thickness skin loss, it was adherent to the underlying tissue; when the eschar was firmly established, the patient was allowed and encouraged to become ambulatory; if joints were involved in the burn, especially the joints of the hand, a thin coating of sterile ointment was applied to prevent cracking of the eschar. If any cracking of the eschar occurred, the adjacent devitalized tissue was debrided. The incidence of infection was low in cases treated by this method; if infection occurred, in a small area, a fine-mesh gauze dressing frequently moistened with sterile isotonic saline was used; larger areas were treated by daily soaks in hexachlorophene solution. In second degree burns, the patient could usually be discharged from the hospital in two weeks, but for deep second-degree burns, several more days of hospitalization were required. Skin grafts were applied to third degree burns after an average of twenty-one days. With this method of treatment of burns, in addition to the reduced incidence of infection, a deep second degree burn does not become a third degree burn through maceration and infection, the patient's general condition and appetite are good, pain is minimal, and the need for nursing care is less, as there are no changes of dressings.

COMMENT

The treatment of burns vacillates with the changing of times and hardly a year goes by without the pendulum swinging from one extreme to the other. No matter what methods are postulated as the best, one method always remains in favor and that is the exposure method of treating burns. I have used this method since my interne days and have found it most satisfactory in many instances. Of a certainty there will be instances when this method must be abandoned in favor of another. However if one must rely upon a good standard method of treating burns, the exposure method will almost always prove to be satisfactory.

B.J.F.

Successful Management of Obstructive Femoral Arteriosclerosis by Endarterectomy

J. A. Cannon and W. F. Barker (*Surgery*, 38:48, July 1955) report the treatment of obstructive femoral arteriosclerosis by endarterectomy in 37 cases. In the first group of 23 cases, the patency of the popliteal artery and at least one of its branches was demonstrated by arteriography; in this group, 20 of these 23 patients were relieved of symptoms and regained their ability to walk without claudication; one other patient showed definite improvement; but 2 others were not improved, although their ischemia has not progressed since operation. In the second group of 14 cases, the popliteal artery and its three major branches were obstructed and the only circulation in the leg was collateral circulation, as shown by arteriography; these patients had severe symptoms, including gangrene of the toes or threatened gangrene of the leg and foot, and low-thigh amputation was considered to be indicated in all but one patient. In this group only this one patient was relieved of symptoms, 4 were improved, and in 9 there was no relief; there was one death in this group due to wound infection with secondary hemorrhage. In 3 of these patients improvement was such that amputation below the knee was done and was successful in 2 cases. In cases of this type the authors consider that endarterectomy is indicated only when the patient refuses amputation and is "willing to take any risk to save the extremity." The technique of endarterectomy used in these cases was a "semiclosed technique," in which intraluminal stripping with a fine-wire loop stripper is done. Postoperatively patients were given heparin, the dosage being controlled by determining the clotting time. In these cases there was no occurrence of thrombosis in the operated segment of an artery in which the pulse was restored, the maximum follow-up period being thirty-five months.

COMMENT

Within the past decade the greatest advance made in the field of surgery has been in the realm of cardio-vascular surgery. The literature is replete with excellent records of these achievements. The above authors have added their own experience to this epic of achievement. Other authors have written about their experiences with orlon replacement for vascular structures. I have used orlon with such unbelievable results that it is amazing to follow such patients. The future of vascular surgery will be more bright with the advent of this new material as a substitute for diseased and/or damaged arteries.
B.J.F.

The Use of Clorpactin WCS 90 as an Antiseptic in Surgery

W. A. Swanker (*American Journal of Surgery*, 90:44, July 1955) reports the use of a 0.25 per cent aqueous solution of Clorpactin WCS 90 for preoperative preparation of the skin and for postoperative dressings in 164 operations, including excision of surface tumors, reconstruction of scars, abrasion of the face, pedicle grafts and other plastic surgery procedures. Clorpactin WCS 90 is a brand of monoxychlorosene. It has been found to be bactericidal against a wide variety of bacteria, and also to have fungicidal and viricidal properties. Preoperatively the 0.25 per cent solution of Clorpactin WCS 90, freshly prepared, was applied "liberally" to the site of operation and the surrounding area. Postoperatively the dressing consisted of gauze soaked in this solution; when a plaster cast fixation was necessary, a small tube

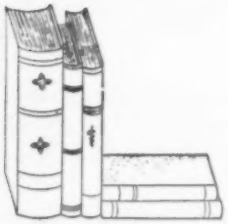
was included in the dressing for the introduction of fresh antiseptic solution. Animal experiments have shown Clorpactin WCS 90 to be non-toxic and non-irritating and no reaction to its use was observed in any of the cases in this series. It was found to be of special value in pedicle grafts where infection frequently occurs, not only preventing such infection but also acting as a deodorant. Clorpactin WCS 90 can be used for the sterilization of stainless steel or chrome-plated surgical instruments but not for uncoated steel instruments, on account of oxidation of the metal.

The Importance of Technique in Cholecystectomy

Frank Glenn (*Surgery, Gynecology and Obstetrics*, 101:201, Aug. 1955) notes that operations on the biliary tract, especially cholecystectomy, have been developed during the past ninety years and that these operations are among those most frequently performed in hospitals in the United States. During this period of development, with modern technique, the operation of cholecystectomy has become increasingly safe, and many hospitals report a low postoperative morbidity and low mortality. In carrying out cholecystectomy, two complications must be given special consideration; the first is injury to the common duct with its associated postoperative complications; and the second is leaving a remnant of the cystic duct. The author has found that the best method of preventing these complications is careful identification and dissection of the cystic duct and of the cystic artery with temporary ligation of this artery; then the removal of the gallbladder from the fundus toward the cystic duct, and definite demonstration of the common duct. He states that he knows of no instance of injury to the common duct in cases where cholecystectomy has been done by this method. In recent years intravenous cholangiography has been done on 121 patients who had persistent or recurrent symptoms following cholecystectomy; in 105, or 86.8 per cent, the common duct was "satisfactorily" visualized by this method; some abnormality of the biliary ducts was demonstrated in 40 cases, including a remnant of the cystic duct in 18 cases. Additional studies showed that 26 patients had other pathological conditions not related to the biliary tract which would account for their symptoms. The use of intravenous cholangiography calls attention to the importance of cystic duct remnants as a cause of postoperative symptoms following cholecystectomy, and also calls attention to the necessity of reducing the incidence of this complication of cholecystectomy by the technique described.

COMMENT

Of all the operative procedures performed within the abdominal cavity, I have the greatest respect for cholecystectomy. There is some opportunity in all operative procedures to do harm; but in the area of the cystic vessels and the common and cystic ducts one may be in difficulty without knowing it until some irreparable damage has occurred. The late Dr. Lahey wrote extensively on this subject and called attention to the dangers involved in cholecystectomy. Dr. Glenn reiterates these dangers and postulates methods to avoid them. Since **repetitio est mater studiorum** it is well to heed the advice of such surgeons as Dr. Glenn. B.J.F.



Medical Book News

Edited by Robert W. Hillman, M.D.

Perinatal Mortality

Foetal, Infant and Early Childhood Mortality. Volume I. The Statistics. Volume II. Biological, Social and Economic Factors. New York, United Nations, Department of Social Affairs, Population Division, [1954]. 4to. 137 pages; 44 pages. Illustrated. Paper, $1.50; 45c. (Population Studies, No. 13)

These books are presentations by the United Nations Population Division. Volume I is concerned with the statistics of mortality and Volume II with the "Biological, Social and Economic Factors" of fetal, infant and early childhood mortality. The publications provide us with information for all countries keeping records. Such information has not been available previously in single volumes. These volumes are invaluable to those interested in differences throughout the world.

SCHUYLER G. KOHL

Neurology

Clinical Neurology. By Bernard J. Alpers, M.D. Third edition. Philadelphia, F. A. Davis Co., [c. 1954]. 4to. 880 pages, 243 illustrations. Cloth, $9.50.

The growing popularity of this basic textbook in neurology, since its first edition in 1945, assures its leadership in the present third edition. This incorporates recent advances requiring revision of many subjects including epilepsy, poliomyelitis, meningitis, encephalitis, neurospyhilis, vascular diseases of the brain, as well as an enlightened approach to associated or blended emotional and mental deviations with organic disorders.

The contents are organized to bring into concise and adequate description all neurological conditions which face the clinician. This method is preferred to a mere description of syndromes. Common conditions, rather than rare and unique disorders are emphasized. Two hundred and forty-three illustrations, as well as helpful tables of differential diagnosis, personality study, reflexes, muscular innervation and numerous figures throwing light on diagnostic build-up, add immensely to understanding and usefulness. This leading textbook of neurology, whose primary purpose is to make this heretofore "difficult" subject more intelligible and better relished by medical students and general practitioners, should always be within arm's reach. A complete index, utilizing italics referring to therapeu-

tic agents, and illustration, adds to its value.

FREDERICK L. PATRY

Surgery

Minor Surgery. By John E. Sutton, M.D. New York, Landsberger Medical Books, distributed solely by the Blakiston Division of the McGraw-Hill Book Co., [c. 1955]. 8vo. 334 pages. Over 100 illustrations. Cloth, $7.00. (Handbooks for the General Practitioner)

This is another attempt to present a complicated problem in a simple handbook fashion.

The complications are not in surgery but in surgical philosophy. It is very difficult for the writer to consider the treatment of basal cell carcinoma of the face as a minor problem. The involvements here are not only those of diagnosis and technique but also matters of medical-legal import, such as malpractice insurance when one is dealing with problems that might produce bad cosmetic results.

While the case histories presented are interesting, it is doubtful if the busy general practitioner would take time to read them. Such a volume is not bedside reading but should be something that can help solve emergency problems.

Concerning the section on Anesthesia, nerve blocks should be done by technically proficient people. A drop of novocaine under the skin for a routine sebaceous cyst would almost never be harmful to a patient. An improperly conducted nerve block used in an effort to obtain extensive regional anesthesia may produce permanent damage in inexperienced hands.

My experience leads me to believe I would see too many complications of minor surgery if I were in a community where this book was used widely.

PHILLIP E. LEAR

Orthopedics

The Joints of the Extremities. A Radiographic Study. Notes on Non-Routine Methods, Non-Routine Ideas, and Less-Common Pathology. By Raymond W. Lewis, M.D. Springfield, Ill., Charles C. Thomas, [c. 1955]. 4to. 108 pages, illustrated. Cloth, $8.50.

The sub-title of this short but excellent book reads: Notes on Non-Routine Methods, Non-Routine Ideas, Less-Common Pathology. The term "Notes" is as apt a description as one can give for this book. It is extremely well written and reads easily. The author gives, in a casual manner, some of the thoughts that have come to him over his many years in active and productive practice. This is not a book for a beginner; rather it is one for a radiologist or orthopedist who has the fundamentals well in hand and would like to hear a few of the inner thoughts of someone who has been in the field for many years—thoughts that usually don't show up in the textbooks. The author stresses, and properly so, the importance of carefully examining the soft tissues on all radiographs, for here lies much information that is frequently overlooked (not looked for). And it may be in the overlooked soft tissues that the sought for diagnosis lies hidden. The book contains excellent radiographs, many with accompanying drawings illustrating the pathological process that the author is attempting to demonstrate. For those who would spend a few comfortable hours profitably, this book is recommended.

HAROLD N. SCHWINGER



How To Question The French Patient

The problem of language barriers is common, especially in areas populated by one or more foreign born groups.

Because the average physician cannot devote the time required to master many foreign languages, MEDICAL TIMES presents this second in a series of brief guides to foreign phrases in the more common languages spoken in the United States.

Keep your "language finder" open in front of the patient and don't worry too much about the pronunciation of words. Your patient will be eager to help.

The completed series of language guides, including French, Spanish, Italian, German, Polish, and Yiddish, will be bound and reprinted as a booklet available at cost.

For examination of French-speaking patients.

Rules of pronunciation

a is pronounced *ah*, as in *father: la malade, bras.*

é, as in *café;* année, appétit, été, diarrhée, nausée

è or ê, as in *pet;* près,

e (without accent mark)—At the end of a syllable, pronounced like the *e* in *the* (thuh): le, se, sera. Before a silent consonant, pronounced like *é* in *café;* avez, nez, poussez, toussez, respirez, ouvrez.

i, as in *police:* petite, facile, appétit, urine. Before another vowel, i becomes like *y* in *yes:* pied fièvre, combien.

o, followed by a double consonant, as in *some, done:* donne, comme.

ou, as in *ooh, cool:* ouvrez, jour, vous bouche.

ai and ei, as in *said:* mains, haleine, connaissance.

Final consonants, whether single or in groups, are silent except c, f, l, and r. Silent: doigts, pieds, estomach, mains, fois, nut, dos, kras, bras. Sounded: laxatif, jour, mal.

Courtesy

NOTE: The courtesy titles, *Monsieur* (Sir), *Madame* (Mrs.) and *Mademoiselle* (Miss) are used freely. Also, the expression *s'il vous plait*, meaning *please*, is always used at the end of any question of direction given the patient. Thank you,

or *merci*, is another word which cannot be used too often. Courtesy words are omitted here for the sake of brevity.

Good day (hello)	Bon jour
Good evening	Bon soir
Goodbye	Au revoir
—until tomorrow	—a demain
How are you today	Comment allez-vous aujourdhui

Anatomical

head	-	la tête	neck	-	le cou
eyes	-	les yeux	chest	-	la poitrine
ears	-	les oreilles	heart	-	le coeur
nose	-	le nez	lungs	-	les poumons
mouth	-	la bouche	shoulders	-	les épaules
teeth	-	les dents	back	-	le dos
tongue	-	la langue	arms	-	les bras
throat	-	la gorge	hands	-	les mains
fingers	-	les doigts	bladder	-	la vessie
legs	-	les jambes	rectum	-	le rectum
feet	-	les pieds	buttock	-	les fesses
stomach	-	l'estomac	hips	-	les hanches

General questions

do you feel sick	vous sentez-vous malade
do you have pain	avez-vous des douleurs
is it much pain	est-ce-que cela fait mal
is it mild pain	une peu douleurs
where	ou
here	ici
when	quand
how many years	combien d'années
how many days	combien de jours
how many hours	combien d'heures
how many times	combien de fois
where were you born	ou êtes-vous né
how old are you	quel âge avez-vous

Directions to patients

do as I do	faites comme moi
relax	relâches-vous (détendez-vous)
relax more	détendez-vous plus

open your mouth	ouvrez la bouche
open your eyes	ouvrez les yeux
breathe deeply	respirez profondement
breathe through your mouth	respirez par la bouche
hold your breath	retenez votre haleine
push	poussez
cough	toussez

Diseases

measles	rougeole
scarlet fever	fièvre scarlatine
chicken pox	varicelle (las picote)
smallpox	variole
pneumonia	pneumonie
typhoid fever	fièvre typhoide
enteritis	enterite
U. R. I.	infection de l'arbre respiratoire superieur
mumps	oreillons

Systemic inquiry

Head

trauma	un coup
unconscious	sans connaissance
did you faint	avez-vous perdu connaissance
are you dizzy	etes-vous étourdi
headache	mal de tête

Eyes

sight	vue
clear vision	bonne vue
near	près
far	loin

Ears

he is deaf	il est sourd
noise in the ears	des bruits dans les oreilles

Nose

coryza	coryza
did you have a nosebleed	avez-vous saigné du nez

Throat

do you have frequent sore-throat	avez-vous souvent mal à la gorge

Cardio-respiratory	
do you tire easily	vous fatiguez-vous facilement
are you short of breath	avez-vous la respiration courte
does your heart beat fast	est-ce que le coeur vous bébat
do your ankles swell	avez-vous des battements de coeur
do you have pain in the chest	est-ce que vos chevilles en flent
—sharp pain	avez-vous mal à la poitrine
—dull pain	—une douleur vive
when you breathe	—une douleur sourde
do you cough	quand vous respirez
do you spit	toussez-vous
sputum	crachez-vous
bloody sputum	crachat
have you lost weight	le crachet avec du sang
does someone in your family have a cough	avez-vous maigri
	y a-t-il quelqu'un qui tousse dans votre famille
Gastro-intestinal	
do you have a good appetite	avez-vous bon appétit
do you have a poor appetite	avez-vous mauvais appétit
are you nauseated	avez-vous des nausées
were you nauseated	avez-vous eu des nausées
do you vomit	movissez-vous
do you have diarrhea	avez-vous de la diarrhée
are you constipated	etes-vous constipé
did you have a B.M. today	etes-vous allé à la selle aujourdhui
	les matières fécales (les selles)
Feces	
black	noires
white	blanches
yellow	jaunes
brown	brunes
bloody	sanglantes (avec du sang)
do you have cramps	avez-vous des crampes
after meals	après les repas
before meals	avant les repas
did you take a laxative	avez-vous pris un laxatif
did you take castor-oil	avez-vous pris de l'huile de ricin (castor)
Genito-urinary	
urine	l'urine
do you get up at night to urinate	vous levez-vous la nuit pour uriner
does it burn	est-ce que ca brûle
chills	des frissons
fever	de la fièvre

Obstetrics and Gynecology

at what age did you begin to menstruate	a quel âge avez-vous eu votre premier menstruation
how many days do you flow	écoulement dure combien de jours
do you have a discharge	avez-vous des pertes blanches
what was your last menstrual period	quel est la date de votre derniére menstruation
are you pregnant	etes-vous enceinte
do you have pain with your periods	avez-vous des douleurs durant vos menstruations
how many times have you been pregnant	combien de fois avez-vous été enceinte
how many children have you had	combien d'enfants avez-vous eu
how much did the largest weigh at birth	quel etait le poids du plus gros
what was the duration of labor	votre travail a duré combien de temps

Extremities

do you have pain in the joints	avez-vous des douleurs dans les jointures

Pediatrics

was there any trouble with the delivery	avez-vous eu des difficultés á l'acouchement
how are the child's stools	comment sont les selles de l'enfant
constipated	constipé
diarrhea	diarrhée
how many in one day	combien (de selles) par jour
does the child eat well	l'enfant mange-t-il bien
any vomiting	est-ce qu-il vomit
does the child turn blue	enfant devient-il bleu
does the child seem tired	enfant semble-t-il fatigué
does it hurt	est-ce que cela fait mal
it won't hurt	cela ne fera pas mal
it will be over in a minute	ce sera fini une minute
do you want a piece of candy	voulez-vous un morceau de bonbon
did you take the temperature	avez-vous pris sa température
what was the temperature	quelle était sa température
what a big handsome boy	quel beau gros garcon
what a beautiful little girl baby	oh, la polie petite fille bébé
good	bien

What About Life Insurance?

PHILIP L. AZOY*

Doctor Jones was washed and ready for the operation. As he waited for an OK from the anesthetist, a nurse brought him a message: A man in the corridor wanted to see him. Dr. Jones shook his head impatiently: "Please see what he wants. I can't go now." Then, the anesthetist nodded and Dr. Jones started to work, wondering vaguely what the man in the hall could want with such urgency that he came right to the door of the operating room.

An hour later the operation was over. Doctor Jones was just about to head for the ward when a nurse reminded him that his caller was still waiting.

The visitor was neatly dressed, about 30 years old with a cheerful smile and vigorous handshake. "Hello, doc, I'm Bill Edwards."

Doctor Jones couldn't place the eager face.

"Why, you remember me from college, same class . . . now I just dropped up to see if I could help you with your insurance problems." Doctor Jones sighed; he was tired, the words came to him through a haze. The visitor grinned assurance. "Now I would like to make out a plan for you . . . to fit *your* needs. We can sit right down here and . . ."

This incident might seem a bit far-fetched. It's not. It actually happened only recently in a large city hospital.

The insurance man has a lot of good points in his argument. He's right when he says you should have life insurance, especially if you're married or have other dependents. But, and here's the point, you ought to have the right

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The physician is a prime prospect for insurance salesmen. He is usually well-informed, well-educated, and a master of the "keep-the-pressure-on-gently" technique of salesmanship. If you give him your ear for even five minutes he can easily have you convinced that you're letting your wife, babies, mother and the whole U.S.A. down. That's assuming, of course, that you're not "covered" with enough life insurance to suit his definition of what's right. And face it, doctor, you're not.

How will you handle your insurance problem? In this first article on insurance problems, the author tells you to "know insurance —before you know your insurance man," points out some facts in life insurance that you should know about.

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*About the Author—Graduate from Princeton University, Philip Azoy served four years with U. S. Army Intelligence during World War II. After three years as an insurance broker, Mr. Azoy accepted his present position as special representative with a nationally known bank in New York City.

amount and kind of insurance for you, fitted to your present situation. Most important, your policies don't have to be the most expensive ones available. There are real buys around—not "bargains," but sound policies with first class companies at less-than-average cost —if you know where to look for them.

Like everyone else, insurance men have to make money. Their income is from commissions. Hence, they will hardly be willing to tell you of special policies on which they would receive no commissions, even if they knew about them. But many companies offering low-cost policies do without agents, spend little on advertising, and thereby hangs a saving, perhaps for you.

Term Term insurance offers you maximum protection for the least cost. It has no cash value nor can you borrow on your term policy. Term policies are written for one year, two, five, ten, or even twenty years. If your term policy is renewable (avoid those that aren't) you can take out another term policy when the first one expires without taking a medical exam. Logically, your term premium will increase with your age since your chances of dying increase as you get older. Most term insurance is convertible to another type of insurance, such as ordinary life, without taking a medical exam. About half of all term policies offered today are renewable.

Ordinary Life Ordinary life policies provide for a "cash-reserve" or surrender value. If forced to stop paying on your policy you will get back some of the money you've paid in—or you can elect to take a certain amount of completely paid-up insurance. Your third option is to leave the cash you have coming, use it for payments on a term policy which would replace your original policy. This will give you a certain period of full insurance protection without paying any further premiums.

When unexpected financial trouble strikes, you can also utilize another feature of your policy. You may borrow on your ordinary life policy either from your insurance company or a bank—and still keep the policy in effect. The longer you've been paying on your policy the greater its loan value.

In other words, ordinary life allows for a financial emergency which might affect your payment of premiums. Term does not. Generally, you pay premiums on ordinary life until age 65 or 70. Some policies are called 20-payment or 30-payment life. On these you pay a higher premium for a 20- or 30 year period and that's all. You then "own" paid-up insurance.

Family Type Insurance The rough thing about this business of insurance is that when you need the most protection, your income is always lowest. You need maximum protection when your family is young and most dependent on you. As your family grows older, your sudden demise wouldn't be quite so crippling to them financially.

Also, as you get older, you'll probably have savings, property, investments, social security benefits and so forth. Your need for insurance is thus decreased.

The so-called family-income plan recognizes the changes in your need for insurance protection. A family-income policy generally combines an ordinary life plan with a term policy. One such package might start off with a total of $25,000 worth of protection. Of this, $10,000 would be term insurance for a

period of 15 years; the remaining $15,000, an ordinary life policy. By the time the term portion expires, presumably your family will need less protection and the $15,000 ordinary policy will be sufficient from then on. Some plans provide for a decreasing term coverage—as the years go by your term coverage is reduced gradually as are your payments.

Thus, family-income plans combine the benefit of high protection early in life with the advantages of ordinary life such as cash and loan value.

What Do You Need? If what you need now is low cost, temporary, stop-gap protection with maximum death benefits, then your choice of life insurance limits itself to term policies. Look around for a good one. Make sure the company you pick is licensed to do business in your state. You can easily checks with your Better Business Bureau by phone. If you wish, later on as your income increases, you can expand your insurance program into higher-cost, savings or endowment policies. At the same time you will probably increase your cash savings and government bond purchases. And still later you may want to invest surplus cash in good quality stocks and bonds.

You probably know about the G.I. or National Service Life Insurance. If you served in the Army or Navy prior to April 25, 1951, you may already have up to $10,000 worth of the world's cheapest and best insurance. It comes in many forms. If you have NSLI term insurance now, you can convert it (as soon as you can afford to) to whole life. Don't ever let it lapse. It is a priceless policy which you could never duplicate. In addition, NSLI currently returns money to you in the form of fat dividends.

For armed forces service after April 25, 1951, the rules are different. The vet is allowed to buy $10,000 term insurance, 5-year basis, but it can be renewed regularly. It pays no dividends but is extremely inexpensive.

After these two types of basic protection the physician is on his own in a world of insurance salesmen.

Another low-cost form of insurance



"Hello Doctor! We've been waiting for you!"

is carried by savings banks in some states such as New York, Connecticut, and Massachusetts. Be sure to investigate by a call to the savings bank in your area. Usually because of the opposition from insurance companies savings bank coverage can be sold only in limited amounts (in Connecticut the maximum is $3,000; in New York $5,000, but in Massachusetts, $25,000).

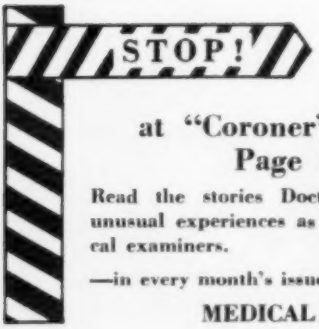
Since the banks have no salesmen and do little advertising their role in the insurance industry is not too widely known. Even if you don't live in these states be sure to investigate because the trend towards agentless insurance is gaining momentum. Pennsylvania, for example, may be the next state to permit savings banks to provide life insurance. Rhode Island and New Jersey legislatures may consider bills this year.

To sum up, here are several forms of insurance about which your insurance agent might never have heard.

Meanwhile, be sure to get in touch with National Service Life, if you qualify. And if an eager young life insurance salesman wants your signature on a policy, ask him to put his suggestions in writing. Better yet, let several salesmen present you with their ideas—in writing. Then at your leisure compare.

As you treat your patients—calmly and judiciously and with knowledge, so buy your life insurance. After all it's a living and a life-time investment.

Incidentally, most insurance can be paid either monthly, quarterly or once a year. Often there are substantial savings to be made if you pay annually. Some banks offer low cost borrowing plans whereby you get a cash loan in the amount of a year's insurance premium. You pay this to your insurance company and repay the bank monthly—at a lower cost to yourself.



at "Coroner's Corner"
Page 29a

Read the stories Doctors write of their unusual experiences as coroners and medical examiners.

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MEDICAL TIMES

Investing For The Successful Physician

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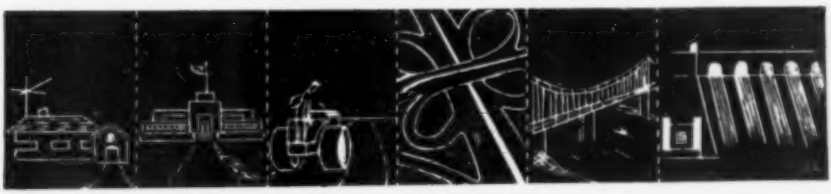
TAX-EXEMPT SECURITIES—MUNICIPAL BONDS

Municipal bonds are obligations incurred by communities to finance the construction and improvement of such facilities as housing, schools, streets and highways, bridges and dams, water systems, etc. As such they are among the best quality investment securities you can own—second only to U.S. Government Bonds.

Perhaps most important to the high-income investor today is the fact that interest from municipal bonds is free from present Federal income taxes. With a few rare exceptions, municipal bonds are the only investments which are exempt from income taxes.

Taxable vs. non-taxable. For example, Mr. Adams is a single man earning $27,000 a year. He has a choice of investing in tax-exempt municipal bonds or in other forms of investment which are taxable (common stocks, corporate or Treasury bonds, real estate and so on). But in order to equal a return of 2.5% from municipal bonds, Mr. Adams would have to find a taxable

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investment yielding 6.58%. Federal income taxes take away the difference.

Mr. Baxter who is married and has two children, has an annual income of $100,000. In his case, a municipal bond yielding 2.5% brings him the same amount of income he would have, after taxes, from common stocks paying dividends to yield 10%. (Both examples are based on latest tax rates.) Considering the great relative safety of municipal bonds, there is little doubt which investment these two men should choose.

The exact value of this exemption from Federal income taxes can be calculated for any given income by referring to the table appearing in this article. Here you can see just how valuable this tax exemption can be to you by looking at the line showing your taxable income. Remember that if you file a joint return, your taxable income should be divided by two.

Safety. A bond is a written guarantee to repay a fixed amount to the investor for the use of the investor's money. Bonds usually are issued in denominations of $1,000.

In meeting these guarantees fully and punctually, municipal bonds have acquired a reputation as highest quality investments. Even during the depression of the Thirties, more than 98% of all municipal issues met their payments without fail and the few defaults which occurred were almost all cleared up with no loss to bondholders who retained their investments during the period.

Most of these municipal obligations are payable from the taxes people pay on their property, their earnings or their purchases. This "death-and-taxes" certainty of the payment of these obligations is upheld by an overwhelming weight of law and is as sound as the productive strength of the American people themselves.

Banks, insurance companies, trusts, endowed institutions and other ultra-conservative investors have long been aware of the gilt-edged quality of municipals. At the latest count, for example, U. S. banks had invested a total of $13 billion in municipal bonds.

Definition. We usually think of a municipality as a city, town or village. However, the term municipal bonds also includes the obligations of states, territories and possessions of the U. S., local districts (school, park, sanitation, etc.) all state and local public districts, including local housing authorities.

Most municipal bonds fall into four major classifications: general obligation, limited tax, revenue and federal- or state-subsidized borrowing such as housing authority bonds.

General Obligation Bonds. These bonds are backed by all the resources of the issuer (primarily its taxing powers) except those pledged or indentured to special-purpose borrowing or spending. The full faith and credit of the borrower is pledged to pay both principal and interest on the bond. Such bonds are issued to finance improvements which benefit the general community such as schools, roads, parks and sanitation facilities.

General obligation bonds are secured by all the real estate and personal property in the community. Even in hard times, people can generally muster enough taxes to retain their property and except for the rare "ghost town," a community is unlikely to fail financially the way a business might.

Limited Tax Bonds. A limited tax bond is an obligation of the issuing

body for which the full taxing power is not pledged. Rather a single tax or series of taxes or other source of revenue is pledged to repay the bond. This type of bond is often issued where the borrowing body is unable to issue sufficient direct debt because of legal limitations. A good example is State of Washington Veterans Compensation Bonds, which, in contrast to the full-faith-and-credit obligations of the State, are secured by the first two cents of a statewide cigarette tax. This is the only tax pledged to the payment of principal and interest on the bonds.

Revenue Bonds. These bonds depend for their payment of principal and interest on the revenue earned by a specific self-supporting project which is operated as a public enterprise such as a power plant, waterworks or a toll highway.

A familiar example of a project financed by revenue bonds is a toll road. Today there are 19 toll-road projects with over 30 bond issues outstanding and a total indebtedness exceeding $4.3 billion. A driver will shortly be able to travel the whole distance from New York City to Chicago non-stop on an express highway; the tolls on this trip will range from $10.95 for a passenger car to $62.20 for the largest truck. Of course, tolls are less for shorter distances.

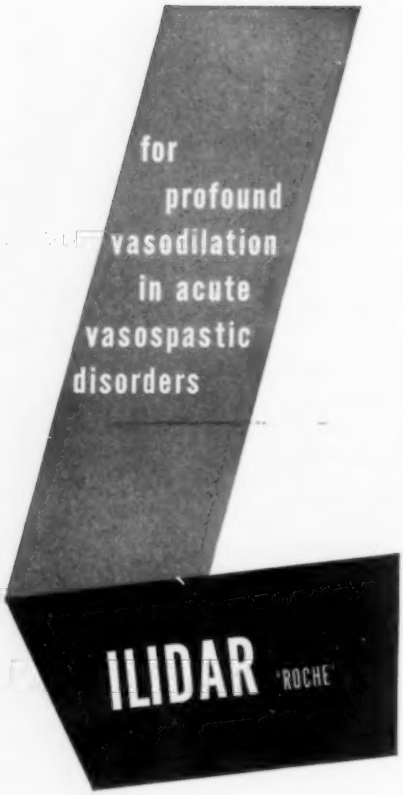
The majority of toll roads are secured only by revenues from the roads themselves, along with other revenues such as gas and restaurant concessions, and bondholders are repaid from these earnings only. In a few cases such as some issues of the New York State Thruway Authority and the New Jersey Garden State Parkway, the state pledges its credit toward the repayment of the issue if revenues should prove insufficient.

Most toll-road bonds are term bonds; that is, they all mature in a single year rather than serially as most municipals do. The relatively high rates of return and the active market in toll-road bonds make them attractive tax-free investments for many investors.

Housing Authority Bonds. A fairly recent type of security is the Local Housing Authority Bond issued under the Housing Act of 1949 which is essentially an indirect obligation of the U. S. Government. The Federal Government has undertaken a program of financial assistance for regional projects designed to alleviate the housing shortage by slum clearance and construction of modern low-rent dwellings.

Local Housing Authorities may now issue bonds which are secured by funds pledged by the Public Housing Authority (a Federal agency) as well as by rental income from the developments themselves. To the investor these bonds are unique. Interest on them is tax-free and principal and interest payments are in effect guaranteed by the Federal Government. The Public Housing Administration has brought fifteen separate issues to the market since 1951 and today almost $2 billion of these bonds are in the hands of investors.

Short-Term v Long-Term. Municipal bond issues usually mature in serial installments so that part of the total debt is paid off each year. For example, a $2,000,000 school bond issue might mature at the rate of 100 bonds or $100,000 in each of 20 consecutive years. The investor, therefore, is given a choice: he may invest his money for one year or for as many as twenty years, in effect, guaranteeing a return



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of capital at any future date he selects. If he buys bonds maturing in one or two years, he has the advantage of maximum safety of principal since the short-term outlook is always clearer than the more distant future. Too, the market price of these bonds will fluctuate over a narrower range than the 15- or 20-year bonds.

On the other hand, if the investor buys bonds of the same issue maturing in distant years, the market price may fluctuate more but he is rewarded with a higher yield. However, regardless of price fluctuation during the life of the bond, it is always redeemed at maturity at its face value, $1,000 per bond.

Legal Opinion. A municipal bond is usually accompanied by a legal opinion issued by a firm of attorneys specializing in public borrowing procedures. This document attests the legality but not the quality of the bonds. In a few instances, the opinion of the issuer's top legal authority such as the attorney general of the state is accepted in place of an independent attorney's opinion. Without a legal opinion a bond has dubious value as collateral and its marketability is greatly limited. Today almost no bonds are issued without a legal opinion.

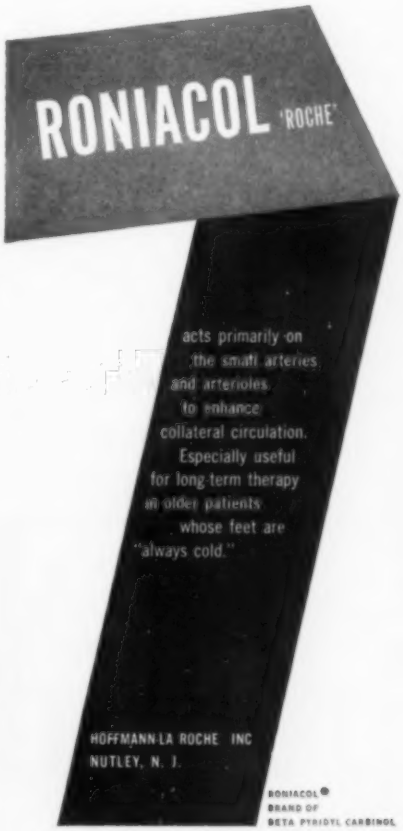
State Tax Exemption. Municipal bonds are generally free of state and local personal-property and income taxes levied within the state where the securities originate. Bonds of other states are generally subject to such state taxes. An investor might conclude, therefore, that he should confine himself to municipal bonds issued within his own state. But this is not necessarily true. State taxes are deductible for federal income-tax purposes, a fact which tends to soften their impact, especially for

higher-bracket investors. Higher yields from out-of-state issues will often outweigh local tax exemptions. Every case is different, of course, depending on the investor's Federal income-tax bracket and the local taxes that affect him. It is thus important to weigh the pros and cons of investing in municipals which would be subject to state or local taxes.

Marketability. Almost all municipal bonds are bought and sold "over-the-counter." Very few are listed on any exchange. Most transactions are in blocks of five bonds or multiples of five, but sales and purchases of smaller amounts are common. Bonds of states and large cities or other well-known political units are generally easiest to buy or sell but even bonds issued by very small municipalities usually have a market at least in their own area.

Mechanics. In order to get a general idea of how a municipal bond issue comes into being, let's consider the $39,920,000 City of Philadelphia Various Purpose Bonds offered for sale October 18, 1955. Like most large cities in the country, Philadelphia is often in the capital market to raise funds to build new facilities, maintain old ones and care for its constant expansion. A group of projects is combined into a single issue and submitted to the voters. If approved by them, the city then advertises in various financial publications for bids for its bond issue.

Underwriters are financial organizations which purchase new security issues for resale to the investing public. Issues of this size are too large for one or two underwriters to handle so they combine into groups, forming syndicates which make joint bids. After a



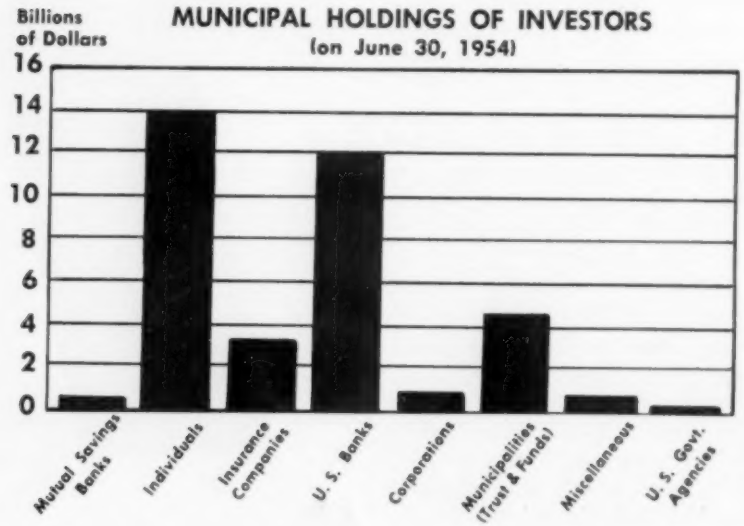
thorough study of the proposed issue and of current and anticipated municipal bond market conditions, two syndicates submitted bids on the Philadelphia issue.

The issue was then awarded to the group which submitted the better bid, that is, whose financing involved the lowest interest cost to the taxpayers of Philadelphia.

The successful syndicate which made the best bid consisted of 120 individual firms whose participations varied from $801,000 each (Merrill Lynch and eleven other firms) to as little as $100,000 per member. It takes many dealers all over the country, both large and small, to sell a multi-million-dollar bond issue to the public.

Analyzing Municipal Bonds. Before an underwriting house submits a bid for a new issue, it must make an exhaustive analysis of the financial condition of the community and the soundness of the proposed bonds. For despite the excellent over-all record of municipal bonds in meeting their obligations, some issues are of better quality than others and many are in greater demand by investors and consequently easier to market. The investor will want to know something about the municipality, too, before investing his money. From his point of view, the quality of the bond issue is the degree of certainty that the issuing body will meet punctually and in full all payments of principal and interest to the bondholders.

The underwriter must dig into details: Wealth of community? Diversified industry and commerce? Character of people and elected officials? Taxes property-owners pay? Total debt behind these taxes—its relation to the number of taxpayers and the value of their property? Soundness of project from an engineering, legal and operating point of view? These are but a




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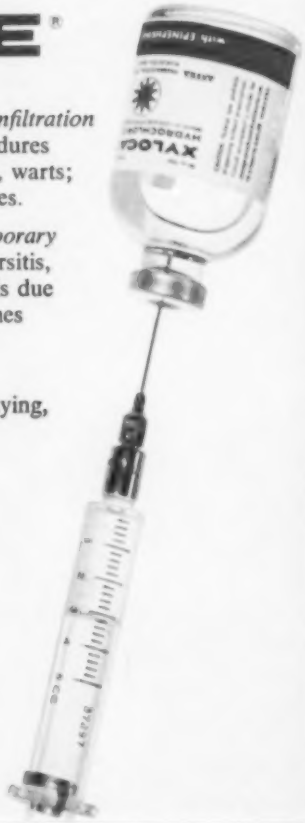
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Bibliography of approximately 300 references upon request.

*Southworth, J. L., and Dabbs, C. H.: Xylocaine: a superior agent for conduction anesthesia, Anesth. & Analg. *32*:159 (May-June) 1953.

Astra Pharmaceutical Products, Inc., Worcester 6, Mass.

Comparative Yields in Different Income Brackets

COMPARATIVE NET YIELDS FROM TAXABLE VS. TAX-EXEMPT SECURITIES
BASED ON TAX RATES IN EFFECT FEBRUARY 1956

Individual Taxable Income Brackets	Tax Rate	Yields on tax-exempt bonds: 1.50	1.60	1.75	1.80	1.90	2.00	2.10	2.25
		Yields on taxable investments held by an individual							
$10,000 to $ 12,000	38%	2.42	2.58	2.82	2.90	3.06	3.23	3.39	3.63
12,000 to 14,000	43	2.63	2.81	3.07	3.16	3.33	3.51	3.68	3.95
14,000 to 16,000	47	2.83	3.02	3.30	3.40	3.58	3.77	3.96	4.25
16,000 to 18,000	50	3.00	3.20	3.50	3.60	3.80	4.00	4.20	4.50
18,000 to 20,000	53	3.19	3.40	3.72	3.83	4.04	4.26	4.47	4.79
20,000 to 22,000	56	3.41	3.64	3.98	4.09	4.32	4.55	4.77	5.11
22,000 to 26,000	59	3.66	3.90	4.27	4.39	4.63	4.88	5.12	5.49
26,000 to 32,000	62	3.95	4.21	4.61	4.74	5.00	5.26	5.53	5.92
32,000 to 38,000	65	4.29	4.57	5.00	5.14	5.43	5.71	6.00	6.43
38,000 to 44,000	69	4.84	5.16	5.65	5.81	6.13	6.45	6.77	7.26
44,000 to 50,000	72	5.36	5.71	6.25	6.43	6.79	7.14	7.50	8.04
50,000 to 60,000	75	6.00	6.40	7.00	7.20	7.60	8.00	8.40	9.00
60,000 to 70,000	78	6.82	7.27	7.95	8.18	8.64	9.09	9.55	10.23
70,000 to 80,000	81	7.89	8.42	9.21	9.47	10.00	10.53	11.05	11.84
80,000 to 90,000	84	9.37	10.00	10.94	11.25	11.87	12.50	13.12	14.00
90,000 to 100,000	87	11.54	12.31	13.46	13.85	14.62	15.38	16.15	17.31

Individual Taxable Income Brackets	Tax Rate	Yields on tax-exempt bonds: 2.40	2.50	2.75	2.90	3.00	3.10	3.25	3.50
		Yields on taxable investments held by an individual							
$10,000 to $ 12,000	38%	3.87	4.03	4.44	4.68	4.84	5.00	5.24	5.65
12,000 to 14,000	43	4.21	4.39	4.82	5.09	5.26	5.44	5.70	6.14
14,000 to 16,000	47	4.53	4.72	5.19	5.47	5.66	5.85	6.13	6.60
16,000 to 18,000	50	4.80	5.00	5.50	5.80	6.00	6.20	6.50	7.00
18,000 to 20,000	53	5.11	5.32	5.85	6.17	6.38	6.60	6.91	7.45
20,000 to 22,000	56	5.45	5.68	6.25	6.59	6.82	7.05	7.39	7.95
22,000 to 26,000	59	5.85	6.10	6.71	7.07	7.32	7.56	7.93	8.54
26,000 to 32,000	60	6.32	6.58	7.24	7.63	7.89	8.16	8.55	9.21
32,000 to 38,000	65	6.86	7.14	7.86	8.29	8.57	8.86	9.29	10.00
38,000 to 44,000	69	7.74	8.06	8.87	9.35	9.68	10.00	10.48	11.29
44,000 to 50,000	72	8.57	8.93	9.82	10.36	10.71	11.07	11.61	12.50
50,000 to 60,000	75	9.60	10.00	11.00	11.60	12.00	12.40	13.00	14.00
60,000 to 70,000	78	10.91	11.36	12.50	13.18	13.64	14.09	14.77	15.91
70,000 to 80,000	81	12.63	13.16	14.47	15.26	15.79	16.32	17.11	18.42
80,000 to 90,000	84	15.00	15.62	17.19	18.12	18.75	19.37	20.31	21.87
90,000 to 100,000	87	18.46	19.23	21.15	22.31	23.08	23.85	25.00	26.92

NOTE: These computations are for a single person paying taxes for 1955. On a joint return filed by husband and wife, the combined taxable income should be divided by two, and the result determines the tax bracket.

This chart shows the ownership of some $37 billion of municipal bonds as of June 1954, the latest break-down available. As can be seen, individuals held the largest single amount of municipal bonds while the balance was held by banks, insurance companies and the like. The holdings of these institutions give a good indication of the degree of safety to be found in municipal bonds.

few of the many questions which must be answered.

Many investors, however, are usually satisfied to accept the quality rating given a municipal bond issue by a competent service such as Moody's or Standard & Poor's. These organizations are recognized independent advisory services and publishers of financial information. They do not deal in securities. Rather they gather and publish relevant information needed for proper evaluation of municipal credit and after careful analysis they assign bond ratings to the larger issues. These ratings range from the best bonds (Moody's Aaa; Standard & Poor's Al+) to the worst (Moody's C; Standard & Poor's Dl or D).

Bonds with high-quality ratings naturally command higher prices and therefore lower yields. Yields will also vary depending on market conditions and year of maturity involved. It is well to keep in mind one's yield objective when selecting municipal bonds. It should be remembered that ratings are based on the long-term outlook and consequently need not always be accepted as an indication of the quality of a nearer maturity. An issue might be rated as medium-grade or speculative but this rating would apply to that part of the debt maturing, say, in ten or more years.

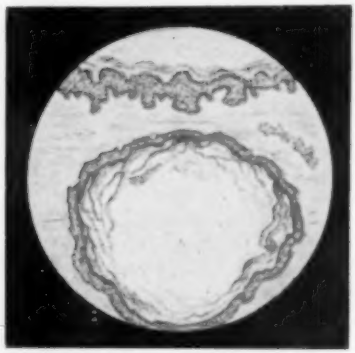
The near-term outlook is much clearer than the long-term, and if there is no dark cloud on the immediate horizon, a bond maturing in two years might be of high quality, regardless of the rating of the issue. Municipal bond ratings may therefore not be too important in considering short-term obligations.

Many issues are not rated at all, even though they may be of excellent quality because of the small size of the issue or lack of complete financial information on the part of the rating services.

Clini-Clipping

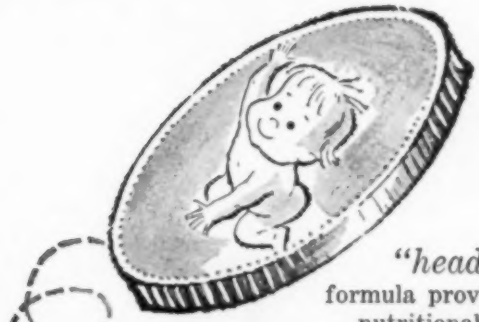


Epidermoid cyst.



Microscopic appearance of epidermoid cyst.

either way you win with Bremil®



"heads"... because a BREMIL formula provides a *complete* nutritional intake that consistently promotes infant growth and development at or above accepted standards[1]; made with grade A milk.



"tails"... because the easily digested, efficiently utilized protein content of BREMIL (approximating that of breast milk) virtually eliminates excoriations due to ammonia dermatitis[1], and does not impose an excessive solute load on the immature kidney[2]

Standard Dilution

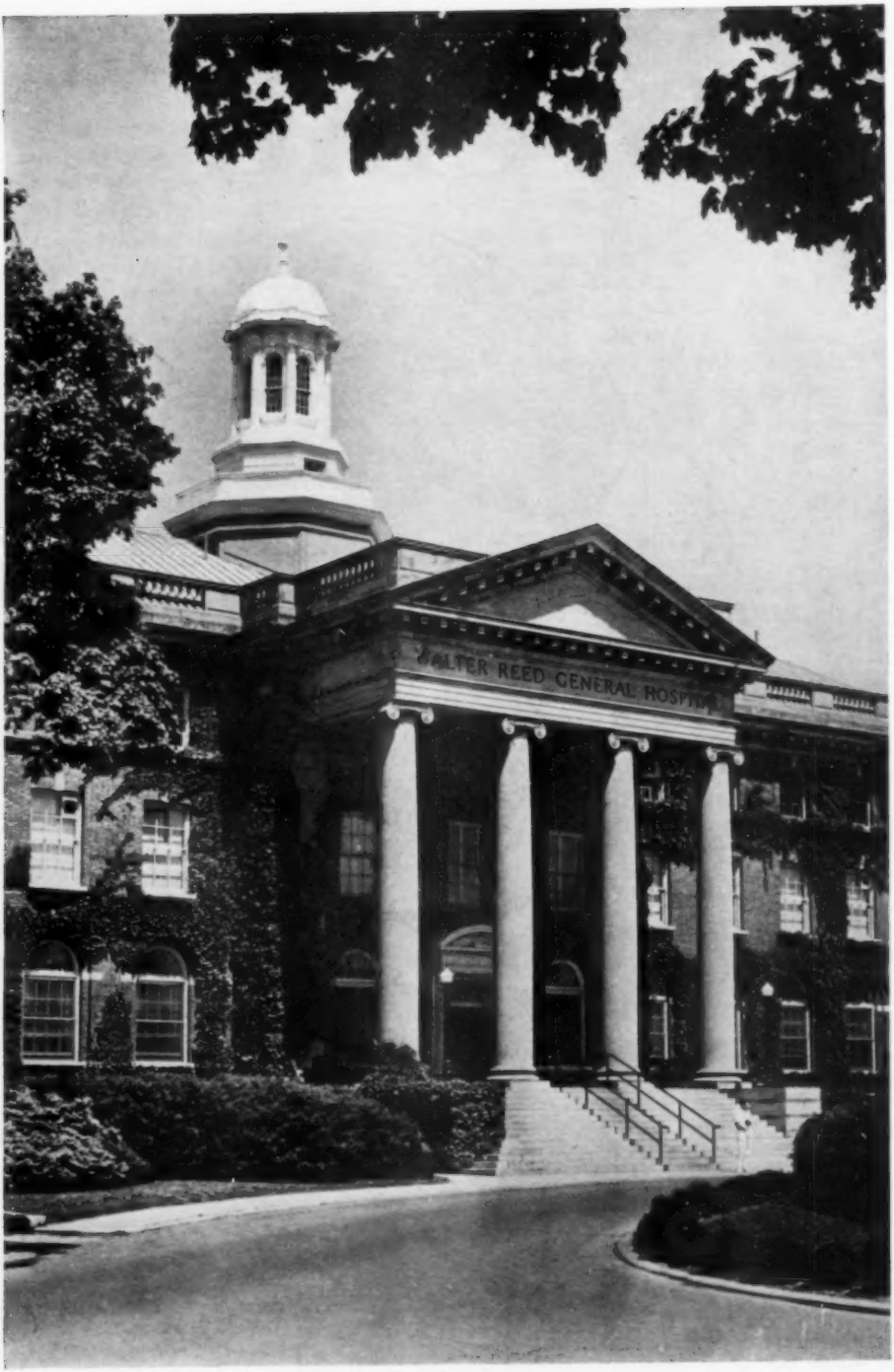
One level measure to 2 fluidounces of hot water. Mixes like a liquid. Costs no more than ordinary formulas requiring vitamin and carbohydrate supplementation. In 1-lb. tins at all drug outlets.



1. Oberman, J. W., and Burke, F. G.: M. Ann. District of Columbia 23:483, 1954. 2. Hill, L. F.: Am. J. Clin. Nutrition 3:75, 1955.

Borden's®

PRESCRIPTION PRODUCTS DIVISION
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WALTER REED GENERAL HOSPITAL

Walter Reed Army Medical Center

First of a series on hospital centers

Of all the Army hospital centers in the U. S. and Hawaii, Washington's Walter Reed Army Medical Center is probably the best-known. Its 1350-bed Walter Reed Army Hospital has been synonymous with the best in military medicine and surgery for nearly 50 years.

Whether Air Force bomber pilot or foot soldier in the Infantry, the military man speaks of "Walter Reed" with respect. And this respect was earned the hard way: top performance in the face of often tremendous odds, odds which are a product of war and further complicated by the thousands of miles separating field hospitals from "stateside" medical care.

Components Besides treating many of the more difficult and unusual medical and surgical cases of the Army and Air Force through its Hospital component, the Walter Reed Center includes the Army's Institute of Research, Dental Laboratory, and the Prosthetics Laboratory.

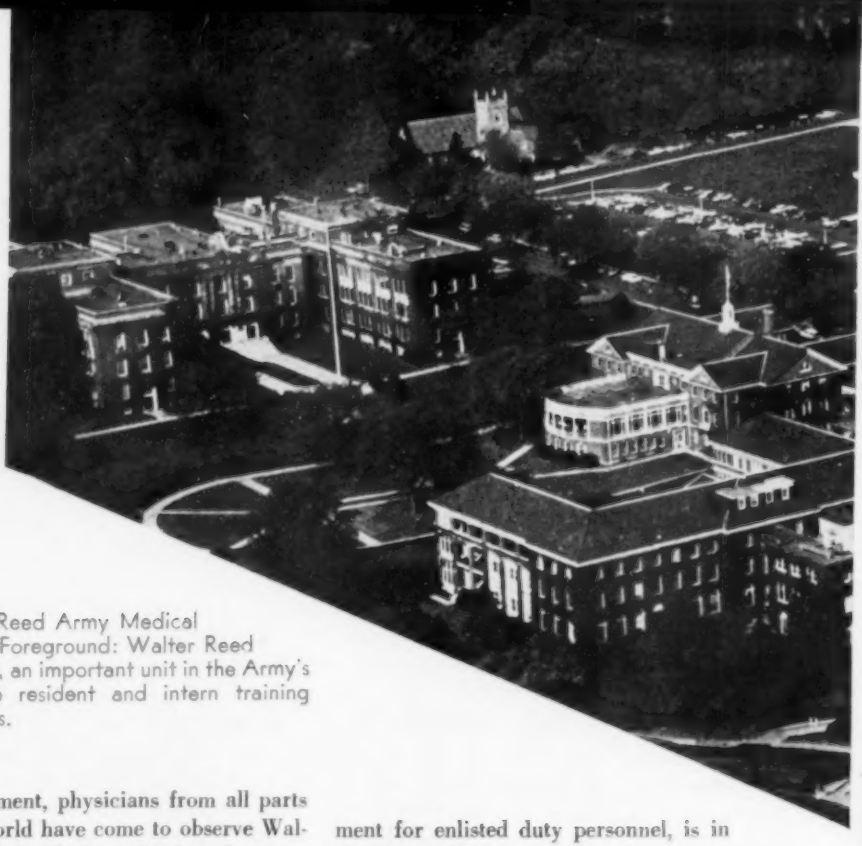
The Army Institute of Research spearheads the army's medical, dental, and veterinary research and graduate education programs. Here too is the country's oldest school of preventive medicine, a pioneer in many public health improvements. Its medical teams have been engaged in research in all parts of the world including, most recently, the battlefields of Korea.

The Army Prosthetics Research Laboratory was established in June, 1945. It has gained world-wide professional recognition for outstanding research in the development of artificial hands, arms, feet, and legs. Among its long list of credits is the interchangeable, artificial hand and hand hook, and a cosmetic glove which covers the artificial hand.

The Army Central Dental Laboratory became a component in 1947.

Keeping busy The Walter Reed Army Hospital, around which the Center was formed in 1923, was founded in 1909 in honor of Major Walter Reed, the Army doctor who led in the fight and victory over yellow fever. Since its doors were first opened, the hospital has cared for more than 365,000 bed-patients among Army and Air Force personnel and their dependents. Last year it admitted upwards of 13,000 patients, with an average daily adult census close to 1200. And since the maternity ward produces a new Army recruit every four hours (that's an *average*, not a schedule), its 40 bassinets are kept busy, too.

With its excellent staff and the newest



Walter Reed Army Medical Center. Foreground: Walter Reed Hospital, an important unit in the Army's extensive resident and intern training programs.

in equipment, physicians from all parts of the world have come to observe Walter Reed's methods and take advantage of its well-known teaching programs.

Location The Center's headquarters is on the original site of Walter Reed Hospital in northwest Washington, D. C., near the Maryland state border. The Graduate School, Dental Laboratory, and Walter Reed Army Hospital are also located here.

A suburban section at nearby Forest Glen, Md., houses the hospital's ambulatory center, the Prosthetics Research Laboratory, the Army's first School for Practical Nursing, and the Army Audiology and Speech Correction Center. The third section, a housing development for enlisted duty personnel, is in Glenhaven, Md.

Residencies and Internships The Walter Reed residency training program embraces 20 medical and surgical specialties and subspecialties. All are board approved and meet the requirements outlined by the Council on Medical Education and Hospitals.

The intern training program consists of a rotating internship with three months each in internal medicine and surgery, and two months each in obstetrics and gynecology, pediatrics, and the medical specialty of the intern's choice. Walter Reed is one of ten Army intern centers.

Photographs courtesy Signal Corps Photograph Laboratory, Walter Reed Army Medical Center



Professional Staff The professional staff of Walter Reed Army Hospital consists of an assigned staff, an attending staff of civilian physicians and surgeons, and a house staff of student officers (residents and interns).

Assigned staff is composed of Medical Corps officers holding positions of chief or assistant chief of services or

sections. They are primarily responsible for the teaching program for residents and interns serving under them and for other officers serving on duty status.

Attending staff is made up of civilian physicians and surgeons, diplomates of American specialty boards or having equivalent training and experience, and in practice in the vicinity of hospital. They are responsible for a definite part of the teaching program. Every effort is made to secure a minimum of 15 hours of teaching per week by assigned and attending staff members in each service or section participating in the program.

House staff includes:

Chief Resident. Appointed by the Hospital Commander from the group of third or fourth year residents assigned to medical, surgical, neuropsychiatric, laboratory, physical medicine, and radiologic services. The assignment may be rotated among residents, with responsibilities according to capabilities. It is the chief resident's duty to plan and supervise meetings and conferences.



Medical officer presents case, learns from the comments and discussion which follows.

Fourth Year Residents. Completed three years of formal specialty training approved by Council of Medical Education and Hospitals of American Medical Association and are in fourth year of such training.

Third Year Residents, Second Year Residents, First Year Residents. Have two, one, or in first year of resident training.



Color TV on a closed circuit brings eye surgery, being performed at Walter Reed Hospital, to Institute of Research.

bursitis subsides with

NEW

SIGMAGEN

(with prednisone)

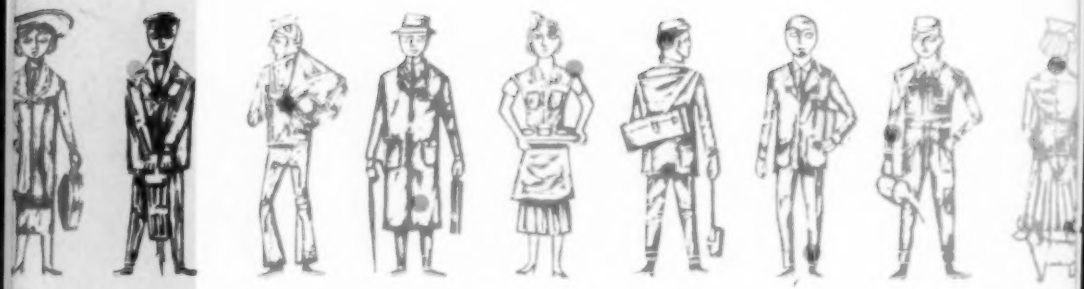
TABLETS

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pain, stiffness, swelling relieved; function improved;
well feeling restored



also in fibrositis, myositis, neuritis, subacute or interval gout,
mild rheumatoid arthritis and spondylitis



now...

in common rheumatic arthritic disorders

when you want the distinct benefits of the newest corticosteroid therapy plus low, effective dosage for greater safety



SIGMAGEN

Schering

combining

Prednisone 0.75 mg.—*best of the new*
Acetylsalicylic acid 325 mg.—*best of the old*
Ascorbic acid 20 mg.—*to fortify the patient against stress*
plus aluminum hydroxide 75 mg.—*to minimize gastric distress from salicylates*

Packaging: Bottles of 100 and 1000.

SIGMAGEN,* brand of corticoid-analgesic compound.

*T.M.

50-1-61-454


who coughed?
WHENEVER
COUGH THERAPY
IS INDICATED
Hycodan®
(Dihydrocodeinone with Homatropine Methylbromide)
Syrup and oral tablets. Each teaspoonful or tablet of HYCODAN* contains 5 mg. dihydrocodeinone bitartrate and 1.5 mg. Mesopin.† Average adult dose: One teaspoonful or tablet after meals and at bedtime. May be habit-forming. Available on your prescription.
ENDO LABORATORIES INC. Richmond Hill 18, New York
†brand of homatropine methylbromide
Endo®
*U. S. Pat. 2,630,400

Interns. Graduates of school or college of medicine approved by Council on Medical Education and Hospitals and in their first year of graduate training.

Duties and Responsibilities *First year.* The first year resident supervises work of interns serving under him, checks histories and physical examinations performed by interns. If no intern is available, he will take the original history and perform an admission physical examination. He is responsible for laboratory and clinical diagnostic work-up of patients under his care and visits patients under his supervision once daily at least. He is also responsible for progress notes on clinical records as well as the comprehensive final summary of patient's hospital stay. Generally, a first year resident has responsibility for one ward and is assisted by one or more interns depending upon number of patients, rate of turnover, and amount of patient care required. He is responsible for teaching interns and nurses in accordance with his capabilities.

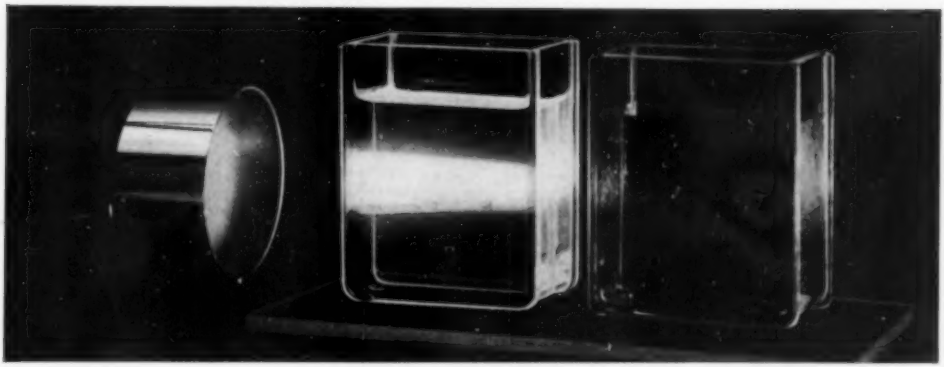
Second year. The second year resident supervises work of first year residents and interns. He visits all patients under his supervision within 48 hours after admission, thoroughly studying history, physical examination, and work-up of patient, and adds admission note to clinical record. He sees all emergency cases at the earliest possible time, and as often thereafter as indicated. The second year resident directs and supervises the more complicated forms of treatment. He makes daily ward rounds, accompanied by first year residents and interns assigned to the ward and is responsible for suitable progress notes. He secures consultations from third or fourth year residents and other members of the assigned and attending staff.

In association with a third or fourth year resident, the second year resident may make consultations on services or sections other than his own for the purpose of accepting patients for transfer to his service. He makes final disposition of patients in accordance with existing policies. He assumes responsi-



Walter Reed officer relaxes with his family in quarters provided on the post.

THIRD REPORT



ANOTHER HIGHLIGHT ON LECITHIN – A NATURAL PHOSPHATIDE

Phosphatides – Clearing Agents of Blood Plasma

Phosphatides have been found in all vegetable and animal cells. There seems little doubt that they are part of the basic structure of protoplasm and also enter into cell metabolism. The most abundantly found phosphatides are the lecithins, whose surface active properties, when combined with proteins and carbohydrates, play an important role as physiologic emulsifiers of fats and oils.[1]

The following considerations highlight the importance of *adequate lecithin plasma concentrations.*

Phosphatides together with cholesterol are found in plasma in combination with proteins and circulate as lipoproteins.[2] The phosphatides in plasma protein are believed to be highly essential for the stability of the complex colloidal system represented by blood plasma.[3] A phosphatide content of 30% or more seems necessary to keep the plasma clear and non-lipemic;[2] lower concentrations will cause the plasma to remain cloudy. (In human plasma lecithin makes up about 80% of the phosphatides present; others are sphingomyelin and cephalin.[2]) A constantly cloudy, lipemic serum can be considered a sign of disturbed fat metabolism, which has been incriminated in the pathogenesis of many serious disturbances. Research on lecithin's potentially useful role in the management of the more complicated forms of deranged lipid and cholesterol metabolism – as in essential hyperlipemia, idiopathic familial hypercholesteremia, xanthomatosis and diabetes – is now being actively conducted. If you are interested in the progress of this research or if you desire to have clinical trial supplies, won't you write to us?

An excellent source of lecithin is Glidden's "RG" Oil-free Soya Lecithin, a highly purified extract containing a minimum of 95% phospholipids. It is packed in a specially designed 8 oz. container to maintain its purity and freshness and is available at your drugstore.

Investigators of lecithin have used quantities from 7.5 to 30 grams daily in divided doses (3 teaspoonfuls equal 7.5 grams).

Administration: "RG" Lecithin is presented in palatable granules which may be taken plain, in milk, in orange juice or other citrus juice, or sprinkled on cereal.

Literature available on request.

Bibliography: 1. West, E. S., and Todd, W. R.: Textbook of Biochemistry, New York, The Macmillan Company, 1952, p. 184. • 2. Drill, V. A.: Pharmacology in Medicine, New York, McGraw-Hill Book Company, Inc., 1954, p. 64/6. • 3. Ahrens, E. H., Jr., and Kunkel, H. G.: J. Exper. Med. 90:409 (Nov. 1) 1949.

GLIDDEN RG® LECITHIN

THE GLIDDEN COMPANY • CHEMURGY DIVISION
1825 North Laramie Avenue, Chicago 39, Illinois

Glidden QUALITY PRODUCTS

bility for teaching first year residents and interns according to his capabilities. He may select and pursue a research project under supervision of the chief of service or section concerned.

Third year. Where applicable, the third year resident will have general supervision of the service or section in which he is being trained. In this year, he completes the research project started in the second year, coordinates the teaching program of his section or service, participates in teaching of interns and residents, renders consultations, coordinates consultations from services other than his own.

Fourth year. General supervision of service under guidance of chief of service. Serves as chief resident on rotating basis with other fourth year residents. Continues many of third year activities.

Ward Rounds Teaching ward rounds are conducted by qualified members of the staff on each ward concerned with a training program. Members of the house staff are called upon to present for group discussions those cases for which they are responsible. The instructor guides the discussion and points out the significant features of the work-up, differential diagnosis, treatment, prognosis, and disposition of each case. The residents have an opportunity to develop their teaching ability as they participate in the teaching of the interns.

Conferences Walter Reed has a "required" conference schedule. Attendance at weekly clinical pathological conferences and bimonthly tumor clinics is mandatory. Professional staff conferences are a monthly requirement. Monthly conferences, devoted to military medical problems, are conducted by



A golf course for military personnel is utilized by staff at Walter Reed.


PHOSPHO®-SODA
(Fleet)
gentle · prompt · thorough
JOURNAL A.M.A.
SURGERY, GYNECOLOGY & OBSTETRICS
A modern laxative
of choice...
as evidenced by
recent and continuing clinical evaluation.
SURGERY
A proven laxative...
as evidenced by professional recommendation
for over half a century.
Also makers of
FLEET® ENEMA
Disposable Unit
ANNALS OF INTERNAL MEDICINE
THE SURGICAL CLINICS
C. B. FLEET CO., INC.
Lynchburg, Virginia
Established 1869
Phospho®-Soda (Fleet) is a solution containing in each 100 cc.,
sodium biphosphate 48 gm., and sodium phosphate 18 gm.

individuals whose background and personal experience in one of these fields are outstanding. Weekly conferences are sponsored by individual services, attendance at which is mandatory for the residents of the service concerned, and optional for other residents.

Studies in the allied sciences are effected by direct application of the principles in relation to clinical cases discussed at the bedside during ward rounds.

In addition, didactic material is presented when indicated. Selected residents are given the opportunity to attend established full-time basic science courses, during, or at the completion of their formal training. For example, an affiliation between Walter Reed Army Hospital and Georgetown University for the residents in dermatology provides these residents with work leading to an advanced academic degree.

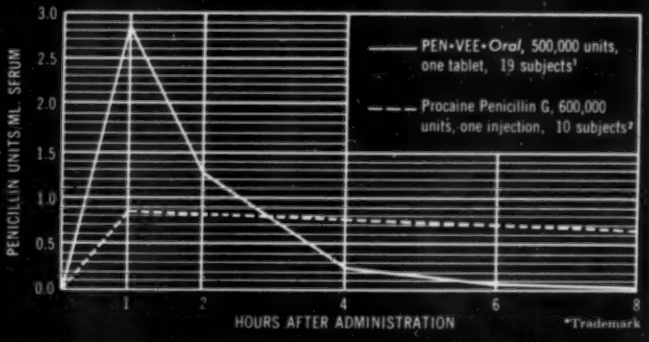
Research Project In the second year of formal training, each resident is encouraged to interest himself in a research project related to his specialty. His chief of service guides and advises the resident in regard to the selection of his project, as well as in its planning and execution. The Hospital Education Committee has final approval of the research project selected. A project may be a matter of joint effort if there appears to be value in such a procedure. When the research project is completed, the responsible individual or group is encouraged to submit a report for publication in an appropriate professional journal.

ORAL PENICILLIN
WITH
INJECTION
PERFORMANCE

PEN·VEE·*Oral*®

Penicillin V, Crystalline (Phenoxymethyl Penicillin)

Higher, faster blood levels than with injected procaine penicillin



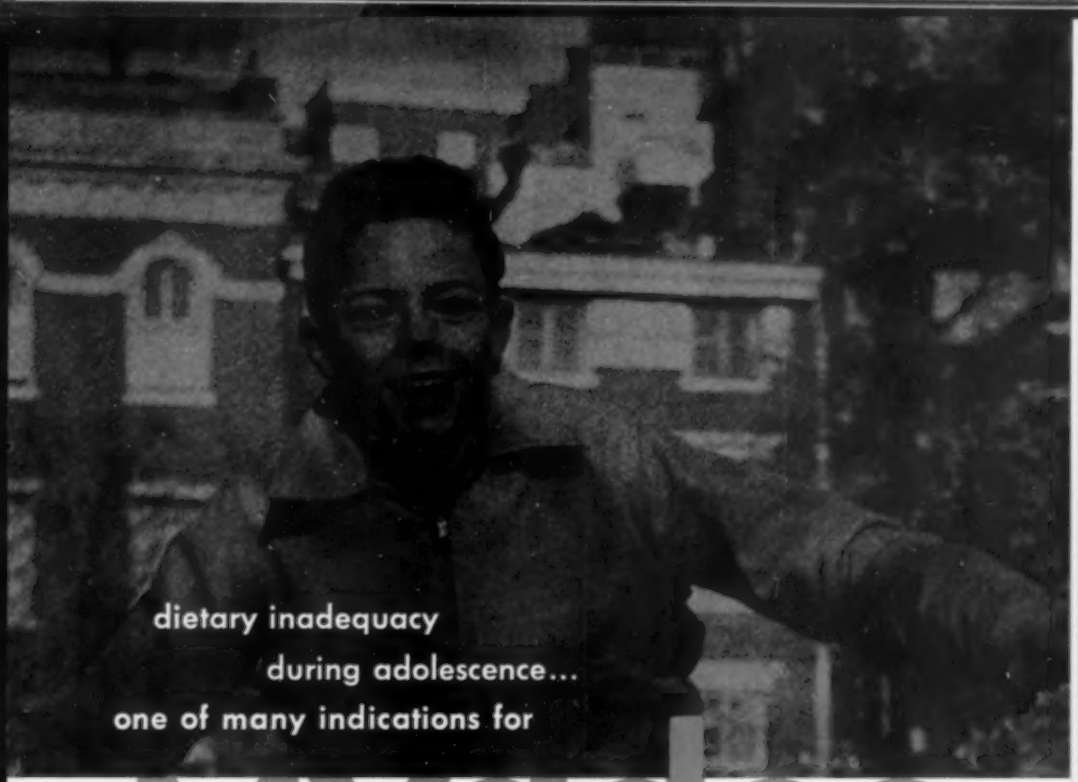
Supplied: PEN·VEE·*Oral* Tablets, 500,000 units, bottles of 12, 200,000 units, scored, bottles of 36.

Also available: BICILLIN® · VEE Tablets, 100,000 units of benzathine penicillin G and 100,000 units of penicillin V, bottles of 36.

1. Wright, W.W.: Personal communication.
2. Price, A.H.: Personal communication.

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Myadec®

high potency vitamin-mineral formula

"Physicians, dentists, and research workers report a high percentage of unfavorable physical conditions closely related to dietary inadequacy....The 13 to 15 age level showed the greatest deviations from good nutritional status and dietary adequacy."*

MYADEC furnishes, in a single capsule, therapeutic potencies of nine important vitamins and is supplemented by eleven essential minerals and trace elements for normal metabolic function.



Each MYADEC Capsule provides:

vitamins:	
Vitamin B_{12} Crystalline	5 mcg.
Vitamin B_2 (Riboflavin)	10 mg.
Vitamin B_6 (Pyridoxine Hydrochloride)	2 mg.
Vitamin B_1 Mononitrate	10 mg.
Nicotinamide (Niacinamide)	100 mg.
Vitamin C (Ascorbic Acid)	150 mg.
Vitamin A	25,000 units
Vitamin D	1,000 units
Vitamin E	5 I.U.

minerals:	
Iodine	0.15 mg.
Manganese	1.0 mg.
Cobalt	0.1 mg.
Potassium	5.0 mg.
Molybdenum	0.2 mg.
Iron	15.0 mg.
Copper	1.0 mg.
Zinc	1.5 mg.
Magnesium	6.0 mg.
Calcium	105.0 mg.
Phosphorus	80.0 mg.

(The minerals are supplied as inorganic salts.)

MYADEC Capsules are supplied in bottles of 30, 100, 250, and 1,000.

*de Planter Bowes, A.: Nutrition of Children During Their School Years, *Am. J. Clin. Nutrition* 3:254, 1955.

PARKE, DAVIS & COMPANY DETROIT, MICHIGAN

a new substance

in a variety of rheumatic disorders...

"an 85% over-all effectiveness"[1]

flexin*

(Zoxazolamine†, McNeil)

the first orally effective lissive‡

Dosage: *Adults*—1 to 2 tablets three or four times a day with food or immediately after meals. *Children*—1 tablet two to four times a day.

Supplied: Yellow, scored tablets (250 mg.), bottles of 50.

*T. M.
†U. S. PATENT PENDING

‡**Lissive:** Relief of skeletal muscle spasm without interference with normal function.

for true spasmolysis of skeletal muscle

Synthesized and characterized by McNeil Laboratories, FLEXIN relieves the disability and pain of skeletal muscle spasm—common denominator of many musculoskeletal and neurological disorders. "Its chief advantages are oral route of administration, long duration of action, and minimal side-effects."[3]

not a mephenesin derivative

FLEXIN provides superior and long-lasting—up to 6 hours—spasmolysis of voluntary muscle in low back syndromes, fibrositis, strains, sprains,* and in noninflammatory rheumatic and arthritic disorders. In one preliminary report of 100 patients, FLEXIN demonstrated "...an 85% over-all effectiveness."[1]

Striking results are reported in cerebral palsy. "The administration of zoxazolamine (Flexin) in 28 children, each of whom had spasticity, produced a decrease of muscular tone on passive flexion in every instance."[2]

Other studies indicate that FLEXIN is of value in a highly significant number of patients with multiple sclerosis,[3,4] as well as in other spinal spasticity states, cerebral vascular lesions and parkinsonism.

(1) Smith, R. T.; Kron, K. N.; Pool, W. P., and Hermann, L. F.: J.A.M.A. 160:745 (Mar. 3) 1956. (2) Arnold, W.: J.A.M.A. 160:742 (Mar. 3) 1956. (3) Abrahamson, E. H., and Baird, H. W., III: J.A.M.A. 160:749 (Mar. 3) 1956. (4) Rodriguez-Gomez, M.; Valdes-Rodriguez, A., and Drew, A. L.: J.A.M.A. 160:752 (Mar. 3) 1956.

McNeil Laboratories, Inc • Philadelphia 32, Pa. McNEIL

MEDIQUIZ

—Concluded from page 80a

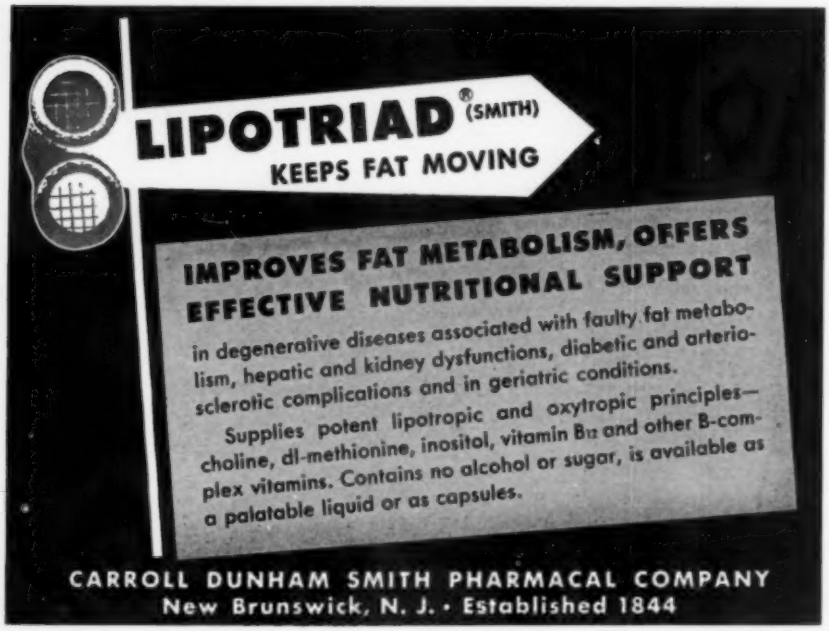
17. Of the following diseases, the one due to infection with Rickettsia is: (A) psittacosis; (B) herpes simplex; (C) Q fever; (D) yaws.

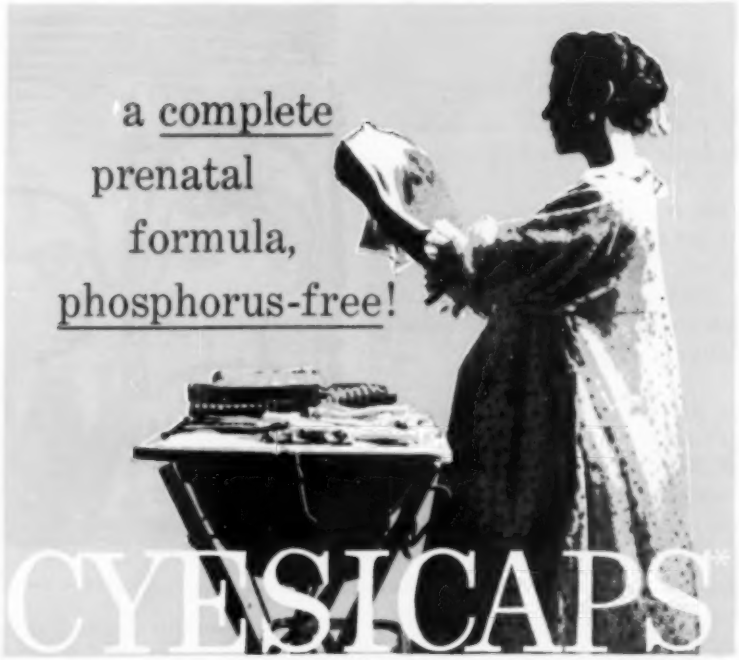
18. Of the total time lost from work by employees in the United States due to illness and injury, the percentage due to occupational causes is most nearly: (A) 10%; (B) 35%; (C) 50%; (D) 70%.

19. A 40-year-old colored male enters the hospital complaining of fever, malaise, weakness, abdominal distention, watery non-foul diarrhea and weight loss for four months. Examination reveals dehydration, disorientation, slight nuchal rigidity, lungs clear to auscultation and percussion, and a sense of nodulation with some tenderness within the entire abdominal cavity. White blood count is normal. Hemaglobin is 11.0 Gm./100 cc. Chest film reveals punctuate nodulation in both lung fields. After dehydration has been carried out, the one of the following which should *not* be done is: (A) spinal tap; (B) surgical exploration of the abdomen; (C) urine culture; (D) placement of patient on streptomycin.

20. Wrist drop is most apt to occur as a complication after: (A) dislocation of the elbow; (B) fracture of both bones of the forearm; (C) supracondylar fracture; (D) fracture of the shaft of the humerus.

Answers on page 118a





PRENATAL VITAMIN-MINERAL CAPSULES LEDERLE

If you find your patients complain excessively of muscle cramps due to high phosphorus intake, prescribe CYESICAPS. Each capsule provides 22 vitamins and minerals plus purified intrinsic factor concentrate; calcium is supplied as calcium lactate, its most readily assimilated form. This well-balanced formula is indicated throughout pregnancy and lactation.

Dosage: 1 or 2 capsules 3 times daily.

dry filled sealed capsules

a Lederle exclusive, for more rapid and complete absorption. No oils, no paste, no aftertaste.

Six capsules supply:

Calcium (as Lactate)	600 mg.
Calcium Lactate	3720 mg.
Intrinsic Factor Concentrate	1.5 mg.
Vitamin A	6,000 U.S.P. Units
Vitamin D	400 U.S.P. Units
Thiamine Mononitrate (B_1)	1.5 mg.
Riboflavin (B_2)	3 mg.
Niacinamide	15 mg.
Vitamin B_{12}	6 mcgm.
Ascorbic Acid	150 mg.
Folic Acid	2 mg.
Pyridoxine HCl (B_6)	6 mg.
Calcium Pantothenate	6 mg.
Vitamin K (Menadione)	1.5 mg.
Iron (as $FeSO_4$ exsiccated)	15 mg.
Vitamin E (as Tocopheryl Acetate)	6 I.U.
Iodine (as KI)	0.1 mg.
Fluorine (as CaF_2)	0.09 mg.
Copper (as CuO)	0.9 mg.
Potassium (as K_2SO_4)	5 mg.
Manganese (as MnO_2)	0.3 mg.
Magnesium (as MgO)	0.9 mg.
Molybdenum (as $Na_2MoO_4 \cdot 2H_2O$)	0.15 mg.
Zinc (as ZnO)	0.5 mg.

*Reg. U.S. Pat. Off.

Lederle LEDERLE LABORATORIES DIVISION AMERICAN CYANAMID COMPANY PEARL RIVER, NEW YORK

HOW OLD IS OLD?

"The really old people are those 10 years older than myself."[1]

"In the lay mind, anyone past 60 is ready for the discard . . ."[2]

". . . there are only three principal phases in the span of life: infancy, adolescence and senescence."[3]

"One finds alert, interesting, active folks in the 80's and, on the other hand, there are people in the 20's and 30's who have all the characteristics of old age."[4]



THE REAL QUESTION

To the physician on the firing line of daily practice, the question of "how old is old?" seems academic. To him, a more valid question is "How can I allay the effects of the aging process?"



FIVE PROBLEMS IN AGING

The answer, according to most authorities, is manifold, for five treatable problems seem to predominate. One, obviously, is gonadal hormone decline. Another is mild anemia. A third is the decreased production of gastric and digestive enzymes. Mineral-vitamin deficiency is the fourth. And the fifth – perhaps most important – is inadequate high-quality protein intake.

THERAPY FOR AGING

Judging from this confused clinical picture of aging, therapy for the problem would appear difficult. However, most physicians agree that a product which could correct most or all of these five commonest problems would remove past obstacles to satisfactory response. Such a product would, essentially, be true "preventive geriatrics."

NEOBON'S COMPREHENSIVE FORMULA

NEOBON®, a product of Roerig research, is a blended combination of the five most commonly indicated factors for prevention or treatment of the nonacute conditions of aging. Each soft, soluble capsule provides:

Non-stimulatory gonadal hormone replacement

balanced hematinic component

digestant enzyme replacement

specially formulated mineral-vitamin combination

new lysine, for protein improvement*

* Protein deficiency among the aging apparently stems from their excessive intake of white-flour foods which furnish incomplete protein of low biologic value. White bread protein, for example, has been shown by nutrition studies in animals[5] to be deficient only in the amino acid, lysine. In human subjects metabolic determinations indicate that the addition of supplemental lysine to a basal white-flour protein diet can convert a negative nitrogen balance into a positive one.[6]



A WORD ABOUT SYMPTOMATOLOGY

In spite of jokes to the contrary, the patient who states in the professional office that "old age is creeping up" is a rare bird indeed.

Seldom is old age the presenting complaint. Thus the physician, after correcting the specific complaints, must re-evaluate the whole person to judge his candidacy for "preventive geriatrics."

Such people have much to gain from NEOBON therapy. The rewards are fuller, more active, more pleasurable years for patients past 40. The daily dose (3 capsules) of NEOBON provides:

L-lysine	150 mg.
Methyltestosterone	3 mg.
Ethinyl Estradiol	0.018 mg.
Pancreatic Substance***	150 mg.
Glutamic Acid	90 mg.
Rutin	15 mg.
Vitamin A (Palmitate)	6,000 U.S.P. Units
Vitamin D (Irradiated Ergosterol)	600 U.S.P. Units
Vitamin E (as Tocopheryl Acetate)	15 I.U.
Calcium Pantothenate	15 mg.
Thiamine Mononitrate (Vitamin B_1)	1.5 mg.
Riboflavin (Vitamin B_2)	1.5 mg.
Pyridoxine Hydrochloride (Vitamin B_6)	1.5 mg.
Niacinamide	150 mg.
Ascorbic Acid (Vitamin C)	150 mg.
Vitamin B_{12} (Oral Concentrate)	3 mcg.
Folic Acid	0.3 mg.
Liver-Stomach Substance**	300 mg.
Iron (from Ferrous Gluconate)	10.2 mg.
Cobalt (from Cobaltous Sulfate)	0.1 mg.
Molybdenum (from Sodium Molybdate)	2 mg.
Copper (from Cupric Sulfate)	1 mg.
Manganese (from Manganous Sulfate)	1 mg.
Magnesium (from Magnesium Sulfate)	6 mg.
Iodine (from Potassium Iodide)	0.15 mg.
Potassium (from Potassium Sulfate)	5 mg.
Zinc (from Zinc Sulfate)	1.2 mg.

**Enzymatically active defatted material obtained from 1,500 mg. whole fresh liver and stomach.

***Enzymatically active defatted material obtained from 750 mg. of whole fresh pancreas.

Dosage: 3 capsules daily, with meals.

Supplied: Bottles of 60 capsules, prescription only.

NEW NEOBON LIQUID

A GERIATRIC TONIC

Now also available for your consideration is NEOBON LIQUID, which provides hematinic action, improved carbohydrate and protein utilization, gonadal and thyroid hormone supplementation and a mild antidepressant action.

The pleasant tasting liquid is especially indicated when a combined attack against nutritional, physiological and mental depression is indicated. Each teaspoonful (5 cc.) of pleasant-tasting NEOBON LIQUID contains:

Ferrous Gluconate	30 mg.
Ascorbic Acid	50 mg.
d-Amphetamine Sulfate	0.5 mg.
Folic Acid	167 mcg.
Vitamin B_{12}	2.5 mcg.
l-Thyroxine	0.1 mg.
Ethinyl Estradiol	1 mcg.
Methyltestosterone	1 mg.
Liver Fraction I	25 mg.
Ethyl Alcohol	0.5 cc.

Dosage: One teaspoonful twice daily before meals, or as required.

Supplied: In 16 fluid ounce bottles, prescription only.

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LETTERS TO THE EDITORS

—Concluded from page 52a

of those hospitals that receive public money, instead of allowing a fiasco to occur as it did in Bay City, Michigan. The AMA could allow us to take post-graduate work in your graduate schools of medicine. Instead of worrying about the Bricker Amendment, the AMA could set its own house straight. DOs and MDs can work side by side just as effectively as Protestants, Jews and Catholics.

There is one more point I would like to make. If the allopaths knew all the answers to health and disease the American patient would have no need for the osteopathic physician. The fact that this school was started, has grown and flourished, should in itself be sufficient testimony that proper recognition and fair play should be accorded the osteopathic physician.

Edward Freedman, A.B., D.O.
Upper Darby, Pennsylvania

Interest and Value

I am in recepit of your letter dated January 24th in which you informed me that your magazine is being sent to me on a complimentary basis. I appreciate your kindness very much and wish to take this opportunity to inform you that it will be all right for you to continue sending your magazine to my office.

I find the material in this journal of interest and value in my profession and I do appreciate receiving it.

R. R. J., M.D.
Terre Haute, Indiana



Advances in Arthritic Therapy

In recent months attention has been directed to the advisability of reconsidering therapies used in the management of arthritis. Following the introduction of the corticosteroids, an enthusiasm for these potent agents developed which encouraged their routine use.

Since the use of these potent substances may produce many undesirable side effects, an effort has been made to utilize smaller doses in combination with other drugs which would provide maximum comfort for the patient with a minimum of side effects.

It has been found that the addition of para-aminobenzoic acid (PABA) to salicylate will increase the antirheumatic benefits of salicylate therapy, while reducing the side effects. This potentiating effect of PABA extends to the steroids as well, and will increase the anti-inflammatory action of a corticosteroid two- or threefold.[1] There is an additional synergism, one that exists between salicylate and steroids. Salicylates stimulate the production of adrenal hormone through the pituitary-adrenal axis[2]—an action which effects greater therapeutic benefits with reduced steroid dosage and reduced side effects associated with larger doses.[3]

ACTYLATE *plus* E is an antirheumatic preparation which applies the above medical rationale. ACTYLATE *plus* E offers triple salicylates (sodium-free) activated by PABA and ascorbic acid, plus cortisone. ACTYLATE *plus* E is suggested for use in rheumatoid arthritis and related conditions, such as fibrositis, bursitis, low-back pain, etc., which do not respond favorably to salicylate therapy alone.

The average initial daily dosage schedule is 6 to 8 tablets in divided doses, immediately before meals or with food. Reduce as symptoms subside until optimum maintenance dosage is reached — often as low as 1 tablet four times daily. Since cortisone is a potent drug, the patient should be watched for adverse hormonal reactions regardless of dosage. Like other adrenal hormone preparations, ACTYLATE *plus* E is contraindicated in active tuberculosis, peptic ulcer, and psychosis. Supplied in bottles of 50 tablets.

If patients develop side effects on ACTYLATE *plus* E, the medication should be withdrawn and ACTYLATE (plain) substituted. ACTYLATE provides a balanced potentiated formula without cortisone. Available in bottles of 100 tablets.

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Potassium Salicylate	80 mg. (1-1/3 gr.)
Strontium Salicylate	80 mg. (1-1/3 gr.)
Potassium Para-Aminobenzoate	0.32 Gm. (5 gr.)
Ascorbic Acid	20 mg. (1/3 gr.)

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Ammonium Salicylate	80 mg. (1-1/3 gr.)
Potassium Salicylate	80 mg. (1-1/3 gr.)
Strontium Salicylate	80 mg. (1-1/3 gr.)
Para-Aminobenzoic Acid	250 mg. (4 gr.)
Ascorbic Acid	20 mg. (1/3 gr.)

1. Wiesel, L. L., and Barritt, A. S.: Am. J. M. Sc. 227:74, 1954.
2. Van Cauwenberge, H., and Heusghem, C.: Lancet 1:771, 1951.
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- Choline 20 mg.
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RAPID CONTROL OF SPONTANEOUS HEMORRHAGE CAN NOW BE ACHIEVED WITH "PREMARIN" INTRAVENOUS

- A new concept of spontaneous hemorrhage is proposed
- A safe and simple therapeutic approach is employed

JACOBSON PROPOSES A UNIFIED CONCEPT OF "SPONTANEOUS HEMORRHAGE" AND REPORTS RAPID CONTROL OF HEMORRHAGIC EMERGENCIES WITH "PREMARIN" INTRAVENOUS.[1,2]

The concept is advanced that epistaxis, coronary occlusion, subarachnoid hemorrhage, gastrointestinal bleeding and similar conditions may be one instead of many diseases.

Spontaneous bleeding is not an isolated incident at a specific site, Jacobson states, but a systemic disease of hormonal origin, probably the effect of tension and stress on the endocrine system resulting largely in depressing estrogen levels. In this sense, spontaneous hemorrhage may be one of the diseases of the General Adaptation Syndrome of Selye. The frequency with which favorable response to

estrogen is elicited in intractable epistaxis strongly supports the concept that rationale of therapy "rests upon the immediate correction of the state of estrogen deprivation . . ."

Types of cases

Rapid control of hemorrhage in over 300 patients with nosebleed prompted the use of "Premarin" Intravenous in spontaneous bleeding from various other sites (see Table: Types of Cases Quickly Controlled).

Estrogen therapy

Jacobson emphasizes that the initial dose of estrogen "be adequate and preferably administered intravenously."

The "Premarin" Intravenous dosage varies according to the needs of the patient. Usually an initial injection of 20 mg. is given and repeated if necessary. Intravenous injections are well tolerated and even large doses "produce only transient symptoms that last but a few hours."

1. Jacobson, P.: West. J. Surg. *63*:711 (Dec.) 1955.
2. Jacobson, P.: Arch. Otolaryng. *59*:523 (May) 1954. Ibid.: Current M. Digest *21*:30 (Nov.) 1954.

MENGER REPORTS DRAMATIC ARREST OF SPONTANEOUS EPISTAXIS AND HEMORRHAGE AFTER ADENOIDECTOMY USING "PREMARIN" INTRAVENOUS THERAPY.*

Complete control of bleeding was achieved in all cases following a single injection of "Premarin" Intravenous.

In 6 patients with profuse epistaxis, hemorrhage was controlled within 20 minutes to an hour in 5 cases, and within three hours in 1. The dose employed was 20 mg.

In 10 children with severe hemorrhage after adenoidectomy, bleeding was stopped after a single injection within one-half to one hour in 9 patients, and within two hours in 1. The dose given was 5 or 10 mg., depending on the weight of the child, and this was administered intramuscularly deep into the gluteal area.

No side effects occurred in any of the patients and, in Menger's opinion, this therapy is the "treatment of choice" in similar episodes of spontaneous hemorrhage.

Menger's study was prompted by Jacobson's 1954 report including more than 300 cases of epistaxis all successfully controlled with parenteral estrogen.

*Menger, H.C.: J.A.M.A. *159*:546 (Oct. 8) 1955.

TYPES OF CASES QUICKLY CONTROLLED WITH PARENTERAL ESTROGEN, AS REPORTED BY JACOBSON.[1]

In the series of cases listed below, only those cases are included where the cause of bleeding could not be determined.

Epistaxis	300	Subarachnoid hemorrhage	12
Delayed post-tonsillectomy hemorrhage	34	Genitourinary bleeding	6
Delayed postprostatectomy hemorrhage	2	Hemoperitoneum	1
Delayed post-traumatic hemorrhage	5	Esophageal varices	1
Rectal bleeding	31	Bleeding from lip	1
Gastrointestinal bleeding	16	Bleeding from ear	1
With evidence of ulcer	7	Bleeding from tongue	1
Without evidence of ulcer	9	Bleeding around a tooth	1

Quick estrogen-control of hemorrhage was obtained in all patients. In some cases, one injection of "Premarin" Intravenous, 20 mg., was sufficient to arrest bleeding. In other cases, repeated injections every few hours were necessary.

FOR RAPID CONTROL OF SPONTANEOUS HEMORRHAGE...

In epistaxis and after adenoidectomy

(Other types of cases listed in inside fold.)

An initial injection of 20 mg. is given. Usually one injection is sufficient. If bleeding recurs, another injection may be given.

In children the dosage may be reduced to 5 or 10 mg. per injection depending on the weight of the child, and may be given intramuscularly.

In functional uterine bleeding

(The use of "Premarin" Intravenous in this type of bleeding is now firmly established. Detailed dosage regimen will be supplied on request.)

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(1) One "Secule"® containing 20 mg. of estrogens in their naturally occurring, water-soluble conjugated form expressed as sodium estrone sulfate, and

(2) One 5 cc. vial of sterile diluent with 0.5% phenol.

The dramatic arrest of spontaneous bleeding using "Premarin" Intravenous has aroused widespread clinical interest. For the latest information, write to Ayerst Laboratories, 22 East 40 Street, New York 16, N. Y.

1. Rothchild, I.: Endocrinology *50*:583 (May) 1952. 2. Greenblatt, R.B., and Barfield, W.E.: J. Clin. Endocrinol. *11*:821 (Aug.) 1951. 3. Hertz, R., Tullner, W.W., Westfall, B.B., Morrow, A.G., and Emge, M.K.: Proc. Soc. Exper. Biol. & Med. *72*:187 (Oct.) 1949.



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Sedative—1 capsule q. 4-6 hours

Hypnotic—2 capsules on retiring

AVAILABLE: Bottles of 36

1. Gatski, R.L., Pentaerythritol chloral: a new agent for hypnosis and sedation: Am. Pract. & Dig. Treat. 6:1885 (Dec.) 1955.

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IVC

MODERN THERAPEUTICS

Tyrothricin in the Treatment of Vaginitis

Among various agents used for the treatment of vaginitis due to *Trichomonas vaginalis*, tyrothricin has proved most effective according to W. E. Barfield of the medical College of Georgia. *International Record of Medicine and General Practice Clinics* [*168*:560 (1955)]. Only patients shown to have vaginitis due to *Trichomonas vaginalis* were included in the group of 70 women comprising the present study. Medication for vaginal use was in the form of tablets of Colpotab containing 5 to 10 mg. of tyrothricin. One tablet was to be used twice daily for 12 days, then once daily at bedtime throughout the next menstrual period and for one week thereafter. Of the original group, only 52 women were available for adequate follow-up. Of these, 84 per cent were benefited; 37 women being completely cured and seven, though entirely relieved of symptoms, still showed one or more motile trichomonads in the vaginal secretion. Four of the remaining



eight patients were relieved of symptoms, but trichomonads were found at examination.

Although the satisfactory response to tyrothricin had been recognized somewhat earlier, the degree of irritation caused to the vaginal mucosa precluded its use. However, improved production methods and the elimination of irritating impurities have warranted its clinical evaluation of effectiveness.

Hydrocortisone in Painful Shoulder

Aware of the difficulties involved in treating pain in the shoulder joint, G. F. Murnaghan and D. McIntosh of Edinburgh, *Lancet* [*2*:798 (1955)] undertook a study of the effects of injecting hydrocortisone into the affected shoulders of 24 patients. These individuals had functional disability from what is generally accepted as periarthritis; all cases of ruptured tendon, painless stiff shoulder, and injuries to the bone were excluded. Injections were made into the superior, antero-superior and postero-superior aspects of the capsule and pericapsular tissues, and consisted of 25 mg. of hydrocortisone acetate in a saline solution to which hyaluronidase was added. Paralleling this trial, 27 patients similarly affected were given injections of another agent. As a result of the injections of hydrocortisone, a few patients were dramatically improved while several were in no way

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benefited. At the end of the first week of treatment, better results appeared to follow the hydrocortisone; rotation was improved, also, patients having had the condition for periods longer than ten weeks showed greater improvement. In summation, the authors believe that injection into the periarticular structures is of benefit symptomatically and mechanically, but they do not consider that their study was of sufficient scope to demonstrate the efficacy of hydrocortisone in these conditions.

Urinary Tract Infections Sensitive Only to Furadantin

A major problem in the treatment of urologic disorders is infections of the urinary tract. Many investigators have studied nitrofurantoin (furadantin) as a chemotherapeutic agent in these infections, but none has reported his findings in connection with infections sensitive only to furadantin. The authors, J. Chinn and A. J. Bischoff have issued such a report in the *Journal of Urology* [*74*:411 (1955)] using only cases insensitive to the more generally used antibiotics. The dosage of furadantin was 5 to 7 mg. per kilogram of body weight given daily in four divided doses. Of the patients with symptoms of cystitis, 72 per cent were completely relieved; 16 per cent attained moderate relief, and 4 per cent, slight relief. In 50 per cent of the cases studied, the urine became sterile. In 14 per cent, cultures showed light growth; in 10 per cent there was a medium growth, and in the remainder there was no change in growth after therapy. In the group in which cultures persisted, 76 per cent remained sensitive to furadantin. In the total number of cases studied, 12 per cent developed resistance to furadantin. Side-effects consisting of nausea and anorexia occurred in 10 per cent of the group. It would appear that furadantin is an important adjunct in the treatment of urinary tract infections, especially in instances in which the tetracycline group and streptomycin are ineffective.

Chlorpromazine in the Management of Tetanus

Based on the premise that chlorpromazine hydrochloride is an antagonist to some central convulsant drugs while it potentiates the action of hypnotics, it was administered in combination with phenobarbitone sodium or chloral hydrate to six patients with tetanus. After an injection of chlorpromazine in a dose of 50 mg. intramuscularly or intravenously, the tetanic spasm was dramatically relieved; the abdominal and back muscles were moderately or completely relaxed, convulsive seizures were inhibited, and a state of drowsiness replaced the anxiety and tension. By the simultaneous injection of phenobarbitone sodium, the tranquilizing effect lasted for a period of twelve hours. Chlorpromazine given orally in a dose of 25 mg. aided the recovering patients in withdrawing from the injections. While the authors, C. E. Cole and H. H. Robertson of the Colonial Medical Serv-

—Continued on page 120a

"MEDIQUIZ" ANSWERS
(from page 77a)

1(B), 2(C), 3(A), 4(C), 5(B), 6(A), 7(B), 8(D), 9(B), 10(C). 11(C), 12(B), 13(B), 14(D), 15(D), 16(A), 17(C), 18(A), 19(B), 20(D).



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MODERN THERAPEUTICS

—Continued from page 118a

ice in Tanganyika, *Lancet* [2:1063 (1955)] are aware that the cases treated by them are insufficient in number to indicate the probable effects of this regimen on the mortality rate from tetanus, they are confident that patients are spared much of the anxiety, tension, pain and exhaustion which are the natural sequelae of this disease.

Prednisone and Prednisolone

In an editorial in the *Lancet* [2:1019 (1955)], mention is made of two new steroid hormones — prednisone and prednisolone — which are derived from cortisone and hydrocortisone by dehydrogenation at the 1 position. Evaluation of their worth is the subject of intense investigation. Of the two new hormones, prednisolone is believed to be slightly more potent than prednisone, and four or five times more potent than cortisone. However, these factors are important from the standpoint of side-effects and of the need for progressively larger doses which may not be tolerated by the patient. Within normal dosage ranges, both prednisone and prednisolone are apparently free from any tendency to produce sodium retention and edema without impairing ability to conserve sodium when the intake is restricted. This difference in effect on sodium balance might allow prednisone to be used in acute rheumatic carditis in which cortisone would be liable to

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increase congestive failure. While no conclusive statements are possible at this time, and the liability of these new drugs to produce side-effects similar to those following cortisone therapy is unknown, several investigators have reported their observations. It was noted that the replacing of cortisone by prednisone did not affect the condition of a diabetic patient, neither did it alter the insulin requirement in several others. The appearance of duodenal ulcers in several patients under treatment with prednisone or prednisolone has raised a disquieting question.

Chlortetracycline

Chlortetracycline is a member of the broad-spectrum antibiotic group, and shares with oxytetracycline and tetracycline efficacy of oral administration, low toxicity and a wide range of action. The scope of activity of chlortetracycline covers the range of penicillin and streptomycin and extends beyond the direction of the larger viruses. In general, gram-positive bacteria are affected by lower concentrations than gram-negative organisms. The extensive antibacterial action of the drug is effective against brucellosis, spirochetal diseases, rickettsial diseases, Rocky mountain spotted fever, typhus fever, Q fever, the large viruses of the psittacosis group, and lymphogranuloma venereum. It has proven of value in the management of infections which no longer respond to routine therapeutic

—Continued on page 124a

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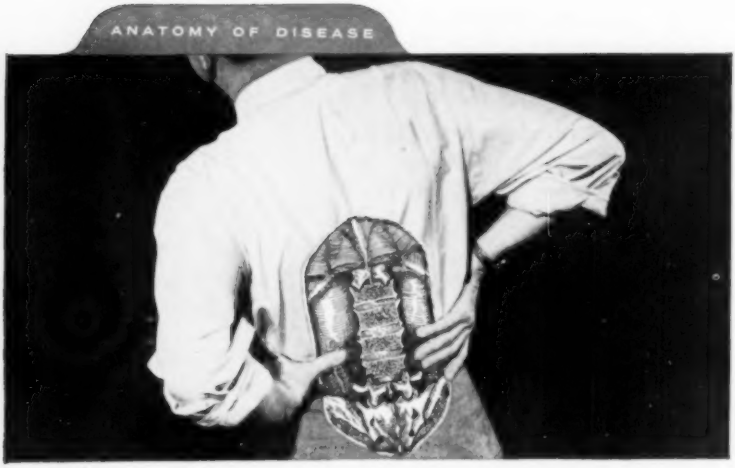
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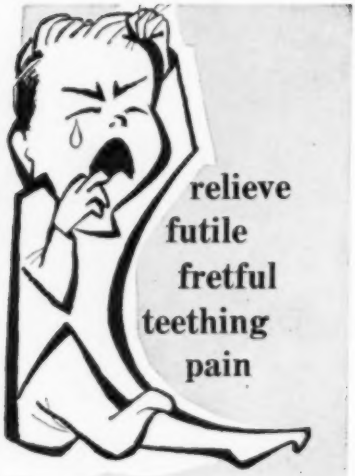
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Vitamin B_{12}	4 mcgm.
Folic Acid	1.5 mg.
Calcium Pantothenate	20 mg.
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—Continued from page 121a

measures, among them severe staphylococcal infections and Salmonella or Shigella infections. The serum levels of the drug attained by oral dosage inhibit but seldom kill the organisms. Intramuscular injections are not well absorbed: intravenous use is the method of choice, but the irritant nature of the drug requires dilution and slow administration: continuous intravenous drip is usually employed. Both mechanism of action and disposition of chlortetracycline are uncertain. It reaches a high concentration in the bile, kidneys, spleen, liver, and lungs. The most common toxic effects result from the irritant action of the drug on the alimentary tract. As often happens with new antibiotics, says J. F. Stokes in his article in the *Practitioner* [*176:* 18 (1956)], initial quantities prescribed are excessive; toxic effects become less troublesome when experience points the way to minimal effective dosage.

Rescinnamine for the Treatment of Hypertension

A number of preparations of Rauwolfia serpentina have been used for the treatment of arterial hypertension with varying degrees of success. Reserpine has been considered to have the most potency. More recently a new alkaloid, designated the alseroxylon fraction, and called rescinnamine has been isolated from the alkaloidal extract of Rauwolfia serpentina, and is believed to have the typical pharmacological properties of reserpine. Guy Lemieux and his associates of Montreal,

—Continued on page 126a

RIASOL

LOCAL TREATMENT IN PSORIASIS

A recent survey of medical literature proves that dermatologists definitely prefer local to internal therapy for psoriasis.

For example, Solomon, Netherton, Nelson and Zeiter* in 1955 said: "Psoriasis is a frequently recurrent common skin disease that is resistant to treatment. Of the various treatments devised for it, the topical ones are superior to the internal ones."

RIASOL is one of the most widely used of all local therapies for psoriasis. In most cases it clears the skin of the scaly patches of psoriasis, or greatly reduces them, in a period of weeks. If applied for several weeks after the visible lesions have disappeared, RIASOL may also prevent recurrence.

RIASOL contains 0.45% mercury chemically combined with soaps, 0.5% phenol and 0.75% cresol in a washable, non-staining, odorless vehicle.

Apply daily after a mild soap bath and thorough drying. A thin, invisible, economical film suffices. No bandages required. After one week, adjust to patient's progress.

RIASOL is supplied in 4 and 8 fld. oz. bottles at pharmacies or direct.

*Solomon, W. M., Netherton, E. W., Nelson, P. A. & Zeiter, W. J., **J.A.M.A.** 157:1349, 1955 (abstract).



Before Use of Riasol



After Use of Riasol



Test RIASOL Yourself

May we send you professional literature and generous clinical package of RIASOL. No obligation. Write

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RIASOL for PSORIASIS

—Continued from page 124a

Canadian Medical Association Journal [*74:* 144 (1956)] conducted an investigation in order to evaluate the new drug clinically in patients with arterial hypertension. The patients were seen weekly at the clinic, and had been observed for an average of 14 weeks as a control period prior to medication which consisted of 1 to 2 mg. daily in tablet form. The drug was given for periods ranging from 5 to 31 weeks. Of the 19 patients taking the test, there was a slight fall in both systolic and diastolic blood pressure in eleven. During the control period the average blood pressure was 192.5/99.5 mm. Hg.; during the rescinnamine therapy it was 186/97.5. Side-effects were slight and transient. Intramuscular administration appears to have a greater hypotensive effect. At this time the authors do not endorse the opinion of other investigators that rescinnamine and reserpine are equally potent, although they concede that an increased dosage might give a "reserpine" response.

Prednisone in Allergic Diseases

Prednisone is the delta-1 analogue of cortisone, and prednisolone is the delta-1 analogue of hydrocortisone. Side-effects have been reported as minimal, and dosages, as somewhat smaller than those of the older drugs. A. R. Feinberg and S. M. Feinberg of Chi-

—Continued on page 128a

WHAT IT IS...
Lavoris is a safe, efficient, delightfully refreshing mouthwash and gargle—designed to help maintain the mouth and throat tissues in a clean, wholesome and more resistant condition.

WHAT IT DOES...
One mouthful of Lavoris vigorously swished and gargled breaks up, flushes out, REMOVES the mucus coating or film, the "bed" where germs thrive and where most mouth odors are born.



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The mouthwash that tastes good and does good

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TENSION

ANXIETY

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WITH PHENOBARBITAL
TABLETS

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BRISTOL LABORATORIES INC.
Syracuse, N. Y.

MODERN THERAPEUTICS

—Continued from page 126a

cago, *Journal of the American Medical Association* [*160*:264 (1956)] conducted a study for the purpose of observing the action of prednisone in connection with allergic disease. It was found that dosage requirements were influenced by the type of manifestation and its severity. In general, the initial dosage was 20 to 30 mg. daily. Maintenance doses ranged from 0.5 to 20 mg., the majority requiring 10 to 15 mg. per day. These patients either had taken cortisone or courses of cortisone and prednisone were alternated. The results of therapy indicated that the majority of patients showed improvement from prednisone with a dose which was 20 per cent of that required with cortisone. In the main, side-effects from prednisone were similar to those encountered with cortisone; the exceptions being sodium retention and edema. Several patients who had gained weight while taking cortisone showed elimination of edema and loss of weight on the prednisone regimen. No serious side-effects occurred; those that were observed followed the larger initial dose of prednisone. Possibly the most annoying reaction was muscular cramps, the mechanism of which has not been explained. Prednisone has been shown to be effective in allergic manifestations, and is five times as potent as cortisone. It appears much less likely to lead to fluid retention.

Oxytetracycline

In a short paper on the evaluation of

—Continued on page 130a

gentle

is the word

for Noludar

Mild, yet positive in action, Noludar 'Roche' is especially suited for the tense patient who needs to relax and remain clear-headed— or for the insomniac who wants a refreshing night's sleep without hangover. Not a barbiturate, not habit-forming. Tablets, 50 and 200 mg; elixir, 50 mg per teasp.



Noludar® brand of methyprylon
(3,3-diethyl-5-methyl-
2,4-piperidinedione)

ROCHE

Original Research in
Medicine and Chemistry

—Continued from page 128a

oxytetracycline, the author, Thomas Anderson of Glasgow, *Practitioner*, [*176:* 24 (1956)] begins by injecting a word of caution against too general usage of drugs as potent as this one when milder forms of chemotherapy would be efficacious. He believes that in clinical practice in Great Britain, oxytetracycline should rarely be the antibiotic of first choice. Rickettsial infections, and the psittacosis-lymphogranuloma infections constitute absolute indications for one of the tetracyclines; another condition is the infection resulting from penicillin-resistant staphylococci. Pneumonia is regarded by many physicians as requiring oxytetracycline, a view to which the author does not ascribe since, he believes, penicillin alone or combined with streptomycin will prove adequate. Two conditions for which oxytetracycline should be considered are pertussis, and bacillary dysentery in which a daily dosage of 10 mg. per kg. should be sufficient. In certain instances, the broad-spectrum antibiotic will probably be the one of choice, but only after the results of a bacteriologic examination are known. As to side-effects, oxytetracycline is a greater offender than its two analogues —tetracycline and chlortetracycline— in the matter of disturbing gastro-intestinal symptoms. There is evidence also that oxytetracycline therapy acts as a growth stimulant to *Candida albicans* and *Staphylococcus aureus*; with the latter, superinfection is a possible and serious reaction. Sensitization, common to all chemotherapeutic agents, is a complication to anticipate — treatment should be kept to as short a duration as possible — four to six days at the most.

Tetracycline

Although tetracycline differs chemically only slightly from its analogues — chlortetracycline and oxytetracycline — it possesses the advantages of being more stable, less likely to produce toxic effects, achieves a higher blood level with the same dose, penetrates the cerebrospinal fluid to a much greater extent, and is readily absorbed from the gastro-intestinal tract and blood stream. It is bacteriostatic, and in high concentrations may be bactericidal. In veterinary work it has been used for nutrition, prophylaxis, and treatment. Its possibilities as a crop spray and food preservative are being investigated. In this drug as in the other antibiotics, the laboratory findings are essential: treatment without bacteriologic assessment is empirical. Penicillin and tetracycline

—Continued on page 132a

Diagnosis, Please!

ANSWER

(from page 25a)

PRE-PYLORIC ULCER

Note direct visualization of ulcer niche with spasm regionally of stomach.



in surgery–

THORAZINE*

- **alleviates anxiety, tension and fear**
- **stops vomiting, retching and hiccups**
- **reduces the need for narcotics and sedatives**
- **lessens the amount of anesthetic required**
- **controls emergence excitement**

provides a smoother course for your surgical patient

'Thorazine' is available in ampuls, tablets and syrup, as the hydrochloride; and in suppositories, as the base.

'Thorazine' should be administered discriminately; and, before prescribing, the physician should be fully conversant with the available literature.

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*T.M. Reg. U.S. Pat. Off. for chlorpromazine, S.K.F.

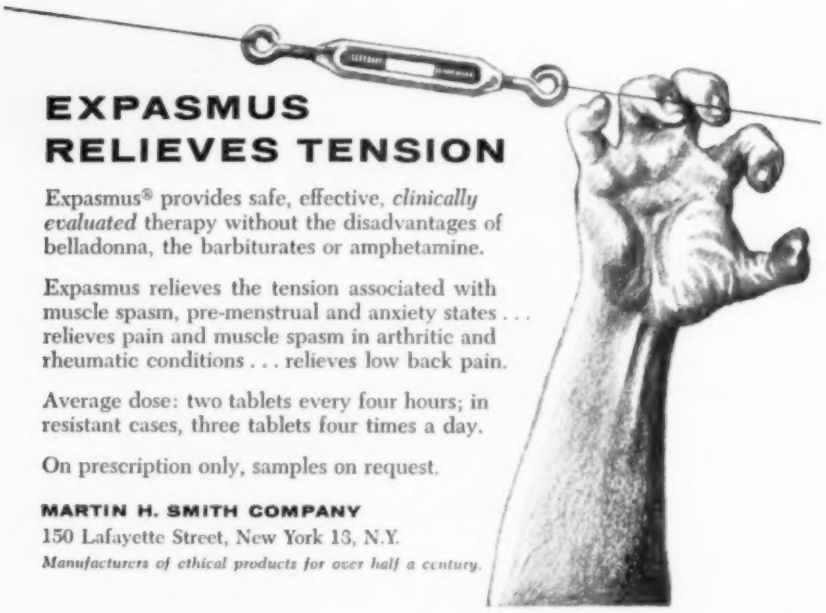
—Continued from page 130a

should not be used together. Tetracycline is the drug of choice in typhus, undulant fever and bacillary dysentery and, subject to susceptibility of the organisms, excellent results follow its administration in a large number of infections. The drug may be administered orally, intramuscularly or intravenously. Usually the daily dosage is 16 mg. per kg. body weight: two grams a day should not be exceeded. When combined therapy is indicated the added drug should be bacteriastatic rather than bactericidal. Side-reactions affect the alimentary canal, and may bring thrush infection and liver damage. The development of superinfection can become dangerous. According to the author, James Ronald, *Practitioner* [*176:* 29 (1956)], tetracycline is a powerful and valuable drug to be used when specifically indicated.

Treatment of Ascariasis with Piperazine Adipate

A number of investigators have reported varying degrees of success in the treatment of ascariasis by the use of several piperazine compounds, but it seemed desirable to have a drug of low solubility that would be absorbed more slowly in the intestine and thus inhibit the neurotoxic effects accompanying the use of the more soluble compounds. Piperazine adipate proved able to satisfy the pharmaceutical requirements, and, in addition, offered the advantages of: a higher anthelmintic effect; freedom from toxic side-effects; stability

—Continued on page 134a



EXPASMUS RELIEVES TENSION

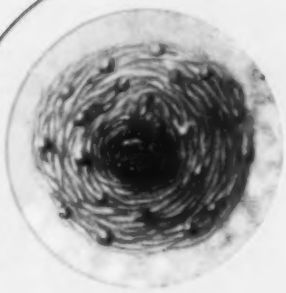
Expasmus® provides safe, effective, *clinically evaluated* therapy without the disadvantages of belladonna, the barbiturates or amphetamine.

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Average dose: two tablets every four hours; in resistant cases, three tablets four times a day.

On prescription only, samples on request.

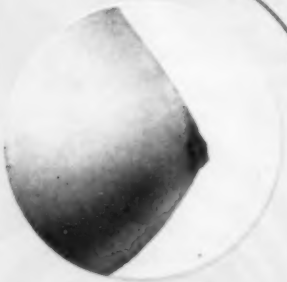
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—a valuable and simple prophylactic measure against drying, fissuring and erosion.

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As a post-surgical dressing, White's Vitamin A & D Ointment provides comfort for the patient and encourages rapid healing.



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—Continued from page 132a

for purposes of storage; a high piperazine content, and a more palatable taste and no odor. Studies to determine the effectiveness of piperazine adipate were carried out by M. Hanna and A. H. Shehata of the Cairo University in Egypt, and the results reported in the *British Medical Journal* [*2:* 417 (1955)]. Eighty-five children between the ages of one and one-half and twelve years were given tablets of the drug according to three dosage schedules—Schedule 2 doubling the amount of Schedule 1, and Schedule 3 being two and one-half the amount of the first schedule. The rate of cure in the first group was 85.7 per cent, in the second, 90.9 per cent, and in the third, 100 per cent. No side-effects were noted, and there were no demonstrable effects on the kidneys, circulatory system, or blood picture.

Erythromycin

Erythromycin is an excellent nontoxic antibiotic with a spectrum of action very similar to that of penicillin. The ease of administration and the low toxicity are tempting reasons to use the drug for all gram-positive infections. However, the faction of resistance indicates that erythromycin should be employed only when infections which are resistant to penicillin and other antibiotics present a serious therapeutic problem. According to Kenneth Maclean of Guy's Hospital, *Practitioner* [*176:* 34 (1956)], the drug should be used chiefly: (1) for infections due to *Staphylococcus aureus* when the strain present has proven resistant to other







'MAREZINE' acts promptly to prevent or relieve . . .

MOTION SICKNESS

NAUSEA AND VOMITING OF PREGNANCY

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TABLETS*:	50 mg. Scored	Bottles of 100 and 1,000
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**Cyclizine Hydrochloride*
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Full information will be sent on request.



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—Continued from page 134

antibiotics, or when the infection has failed to respond to penicillin, (2) for infections due to other gram-positive cocci if a definite contraindication to penicillin therapy exists, and (3) for diphtheria carriers in whom penicillin has failed to eradicate the organisms. Erythromcin is not indicated in the treatment of infections due to gram-negative cocci. It may occasionally be used in the treatment of brucellosis due to the *suis* and *melitensis* organisms. The recommended oral dosage is 0.3 to 0.5 grams at six-hour intervals, making the total dose for 24 hours 1.2 to 2 grams. If parenteral administration is necessary, the intravenous route is preferable; the drip method may be used; direct injection should be made over at least five minutes. If intramuscular injection is used, a large muscle must be selected. Administration of the drug should be continued for 48 hours after all evidence of the infection has disappeared. In general, toxic effects are mild, few and far between.

Fludrocortisone Acetate Used Clinically

Fludrocortisone acetate was administered to several patients with diseases that were known to be amenable to adrenal steroid therapy; among them, anorexia nervosa, the adrenogenital syndrome, chronic rheumatoid arthritis and chronic recurrent choroiditis: satisfactory response to the drug was demonstrated. Several patients with adrenal cortical hypofunction were given fludrocortisone acetate which was found to be a successful total replacement. The authors, G. J. Hamwi and R. F. Goldberg, of the Ohio State University, *Journal of the American Medical Association*, [*159*:1598(1955)] concluded that fludrocortisone acetate has a cortisone-like effect averaging 15 to 20 times as great as hydrocortisone in its ability to: (1) inhibit the pituitary stimulation of the adrenal cortices, (2) produce loss of nitrogen, calcium, and phosphorus, (3) inhibit inflammation, and (4) produce a sense of well-being. Fludrocortisone acetate has an effect on mineral and water metabolism similar to desoxycorticosterone but averages about five times as great as that agent in its ability to promote sodium, chloride, and water retention and potassium diuresis. It is presumed that its greatest clinical influence will be in adrenal insufficiency or adrenal surgery where both desoxycorticosterone and cortisone effects are desirable.

Neomycin

Neomycin has the widest antibacterial spectrum of any of the antibiotics, and is effective against the majority of pathogenic gram-negative bacilli as well as virtually all strains of *Micrococcus pyogenes*. Many strains that are resistant to the other antibiotics are sensitive to neomycin. This drug is the only antibiotic with a wide antimicrobial spectrum that is bactericidal; the dosage that inhibits growth is usually sufficient to kill. B. A. Waisbren of Milwaukee, Wisconsin, *Practitioner*, [*176*:39(1956)] bases his report on a study of 300 patients. He has seen no instance of untoward side-effects after oral or topical application of the drug. However, parenteral administration has

—Continued on page 138a

Throughout the world...
use in millions of cases
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TERRAMYCIN®

BRAND OF OXYTETRACYCLINE

...well-tolerated, rapidly effective broad-spectrum antibiotic of choice.

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MODERN THERAPEUTICS

—Continued from page 136a

been followed by renal toxicity, and nerve deafness. The deafness, while not reaching total loss of hearing, does not improve after its onset. In cases of serious infection due to *M. pyogenes* when a fatal outcome appears inevitable this risk seems justifiable. The aerosol administration of neomycin seems to be the most effective antimicrobial agent in the management of patients with chronic bronchitis, bronchiectasis and emphysema. Apparently the total bacterial flora in the respiratory tree are reduced, many pathogens are killed, and benign organisms may then establish the predominant flora. The oral use of neomycin first occurred as a preoperative bowel preparation. Its use is also indicated in cases of diarrhea due to *M. pyogenes*, *E. coli* and *Proteus morganii*. Shigella and Salmonella carriers have cease to be a public health menace since the advent of a ten-day course of two grams of oral neomycin daily. Varicose ulcers, eczematoid and pyogenic dermatitis yield to neomycin ointment, as well as secondary infections in the involved areas of severely burned patients.

Prednisone and Prednisolone

Prednisone and prednisolone are produced by the dehydrogenation at the 1 position of cortisone and hydrocortisone. Apparently their glucocorticoid and eosinopenic activities are three to four times those of the parent compounds. J. D. N. Nabarro and his associates of London, *Lancet* [*2*:993 (1955)] have reviewed the literature on these steroid hormones and have reported their own observations. A group of patients with lymphatic and aleukemic leukemia, and lymphoma had showed dramatic improvement from the administration of cortisone: when prednisone was substituted the improvement was maintained. Corresponding doses of the two were: cortisone, 100 mg., 150 mg., and 150 mg.; prednisone, 30 mg., 30 mg., and 40 mg. Side-effects which had developed under the cortisone regimen were unaffected except that salt tolerance was improved and edema subsided. With the newer drug used, there was little change in urine sodium excretion, no sustained potassium diuresis, no change in nitrogen excretion, and very slight effect on blood-sugar. Prednisone causes adrenal suppression, therefore patients receiving long-term treatment will be in a state of adrenal deficiency if the steroid is abruptly withdrawn. Also, if an intercurrent illness should develop during or shortly after treatment, the normal adrenal response will be absent or de-

—Continued on page 141a

MEDICAL TEASERS

Solution to puzzle on page 43a





Newest in vitamin therapy

Vitamins as nature intended . . .

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THE HOMOGENIZED VITAMINS

For the first time, all the advantages of multivitamin drops are available in a tablet. By a unique process, the vitamins are homogenized, then fused into a solid, highly palatable form.

As a result of this minute subdivision, the vitamins are absorbed and utilized much more efficiently than those in the usual compressed tablet or elastic capsule.

- Better absorbed and utilized
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Three formulas:

Prenatal
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P1554

—Continued from page 138a

layed. It has been suggested that patients receiving long-term steroid therapy should be given corticotrophin injections from time to time.

Polymyxin

Polymyxin is the name applied to a group of antibiotics designated by the suffixes A to E. All exert a powerful action against gram-negative bacteria. Because A, C and D caused injury to the renal tubules, B and E, which are free of such action, have been mistakenly placed under the same stigma: A, C and D are no longer available for use. On account of their narrow antibiotic spectra, polymyxins are not suitable for blindfold therapy but, in infections by susceptible micro-organisms, they are most valuable. Polymyxin is pre-eminent in the treatment of *Ps. aeruginosa* infections, against which it is the most uniformly effective of all antibiotics. These bacteria are present in many infections of the urinary tract, in meningitis caused by gram-negative bacilli, in infected wounds, and osteomylitis, in infections in burns, and in infections of the nasal sinuses, ear and eye. Like penicillin, polymyxin is of greatest value in circumstances in which speed of action and a bactericidal, as distinct from a bacteriostatic, effect are demanded. This mode of action in chronic infected lesions is of special value. For the control of intestinal infections high oral dosage may beshrdlu u s e d : in treating systemic infections parenteral injection is necessary: the intramuscular and intravenous

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routes give high blood levels. However, diffusion across the blood-brain barrier is negligible so that adequate concentrations in the cerebrospinal fluid must be obtained by intrathecal injection. According to Peter N. Swift, *Practitioner* [*176*:47 (1956)], polymyxins B and E are free of any toxicity sufficiently serious to contraindicate their systemic use.

Chlorpromazine Hydrochloride

Chlorpromazine hydrochloride is related to promethazine hydrochloride which has a hyoscine-like action in cases of Parkinson's disease, and vomiting. E. M. Glaser and S. B. Newling of Singapore, *British Journal of Pharmacology and Chemotherapy* [*10*:429, 1955] undertook an investigation to discover whether or not chlorpromazine exerted a hyoscine-like action on healthy people. In one experiment, 50 students were given tablets containing either 25 mg. of chlorpromazine hydrochloride or lactose, so arranged that 25 students began with the drug and the other half took the lactose first, but none knew what he was taking. In the second test, 80 students were equally divided so that all took a course of (1) chlorpromazine hydrochloride, 25 mg.; (2) 50 mg.; hyoscine hydrobromide, 0.75 mg., and (4) lactose, each taking the courses in different rotation. In both groups, the effects of the chlorpromazine (25 mg.) were substantially similar to the effects of the lactose, the only difference being a dryness of the mouth noticed after the chlorpromazine. The incidence of symptoms from the 50 mg. of chlorpromazine and the hyoscine was greater, especially from the hyoscine. Appar-

—Continued on page 144a

All the benefits of prednisone and prednisolone plus positive antacid action to minimize gastric distress...



Multiple Compressed Tablets of 'Co-Deltra' and 'Co-Hydeltra' are designed to help the physician cope with the problem of gastric distress which might otherwise become an obstacle to therapy with prednisone and prednisolone. Each Multiple Compressed Tablet is formulated as a "tablet within a tablet" to provide stability and to release in sequence antacid and anti-inflammatory components.

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MULTIPLE COMPRESSED TABLETS

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MODERN THERAPEUTICS

—Continued from page 142a

ently there was a similarity of results from the chlorpromazine (50 mg.) and the hyoscine; the notable difference being that the chlorpromazine accelerated the heart rate and the hyoscine slowed it. Also, chlorpromazine in doses of 50 mg. seemed to have some action on the cerebral cortex, since it inhibited habituation to the experiment. This conforms with reports of its value in the treatment of psychiatric conditions, and in anesthesia.

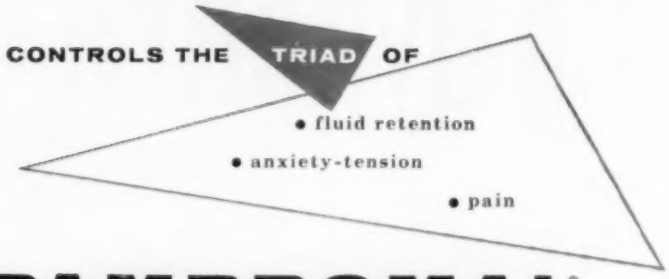
Effect of Reserpine on Gastric Secretion

Many investigators have reported the effectiveness of reserpine in the presence of conditions in which anxiety, tension and aggression are prominent. Experimentally it appeared that the drug increased motor activity of the intestinal tract as well as volume and hydrochloric acid content of gastric juice. One investigator believed that reserpine had a potent effect on the parietal cells of human gastric glands. J. A. Rider of San Francisco, *Proceeding of the Society for Experimental Biology and Medicine.* [*90*:636(1955)] conducted a study of reserpine to determine what effects therapeutic doses of the drug had on gastric secretion. Twenty unselected patients with various types of gastrointestinal disorders were given 0.25 mg. of reserpine orally four times daily from seven to 210 days. None received any other medication during the test which would have effected gastric secretion. Results of the tests were compared with corresponding pre-treatment values. Maximum free gastric acidity

—Continued on page 148a

a new and specific treatment of

PREMENSTRUAL TENSION...



PAMBROMAL® *tablets*

combination therapy for a complex condition

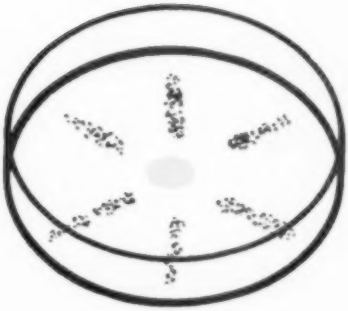
Each tablet contains:		
	Pamabrom (to neutralize the action of the antidiuretic hormone)	50 mg.
	Dextro-amphetamine sulfate (to elevate the mood)	2.5 mg.
	Carbromal (to relax tension)	130 mg.
	Salicylamide (to relieve pain)	250 mg.

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SUPPLIED: Tablets, 50 and 100 mg., bottles of 25 and 100.
Oral Suspension, 5 mg. per cc., bottle of 118 cc.

REFERENCES: 1. Mintzer, S., et al.: Antibiotics **3**:151, 1955. 2. Felton, F. C., and Kemp, A. P.: J. Urol. **73**:718, 1955. 3. Walshren, R. A., and Crowley, W.: A.M.A. Arch. Int. M. **95**:653, 1955. 4. Flippin, H. F., and Eisenberg, G. M.: Antimicrobial Therapy in Medical Practice, Philadelphia, F. A. Davis Company, 1955, p. 40.

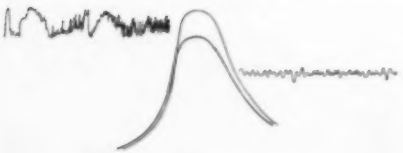
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in grand mal

and psychomotor attacks



"MYSOLINE," employed alone or in combination with other medication, controlled or markedly improved 73 per cent of 45 patients with major motor seizures. In each instance, the previous medication had proved to be ineffective.[1]

"MYSOLINE," when used as *initial therapy* in a series of 97 grand mal patients, controlled seizures in 57 per cent of the patients; an additional 22 per cent were improved.[2]

". . . after the proper dose was established, 'Mysoline' was well tolerated without [serious] side effects."[3]

1. Doyle, P. J., and Livingston, S.: J. Pediat. *43*:413 (Oct.) 1953.
2. Livingston, S., and Petersen, D.: To be published.
3. Pence, L. M.: Texas State J. Med. *50*:290 (May) 1954.

LITERATURE ON REQUEST

Supplied: Tablets, 0.25 Gm. Bottles of 100 and 1,000.
Suspension, 0.25 Gm. per 5 cc. (teaspoonful). Bottles of 8 fluidounces.

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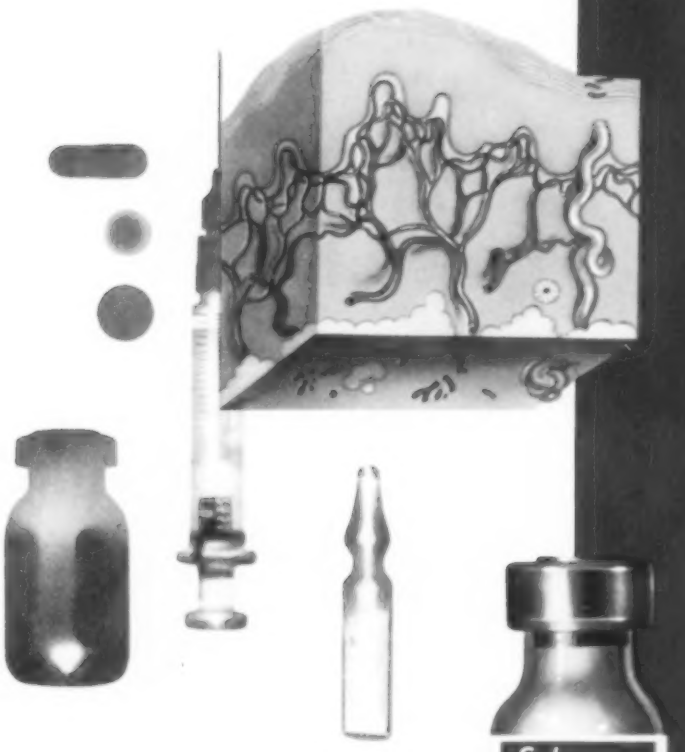
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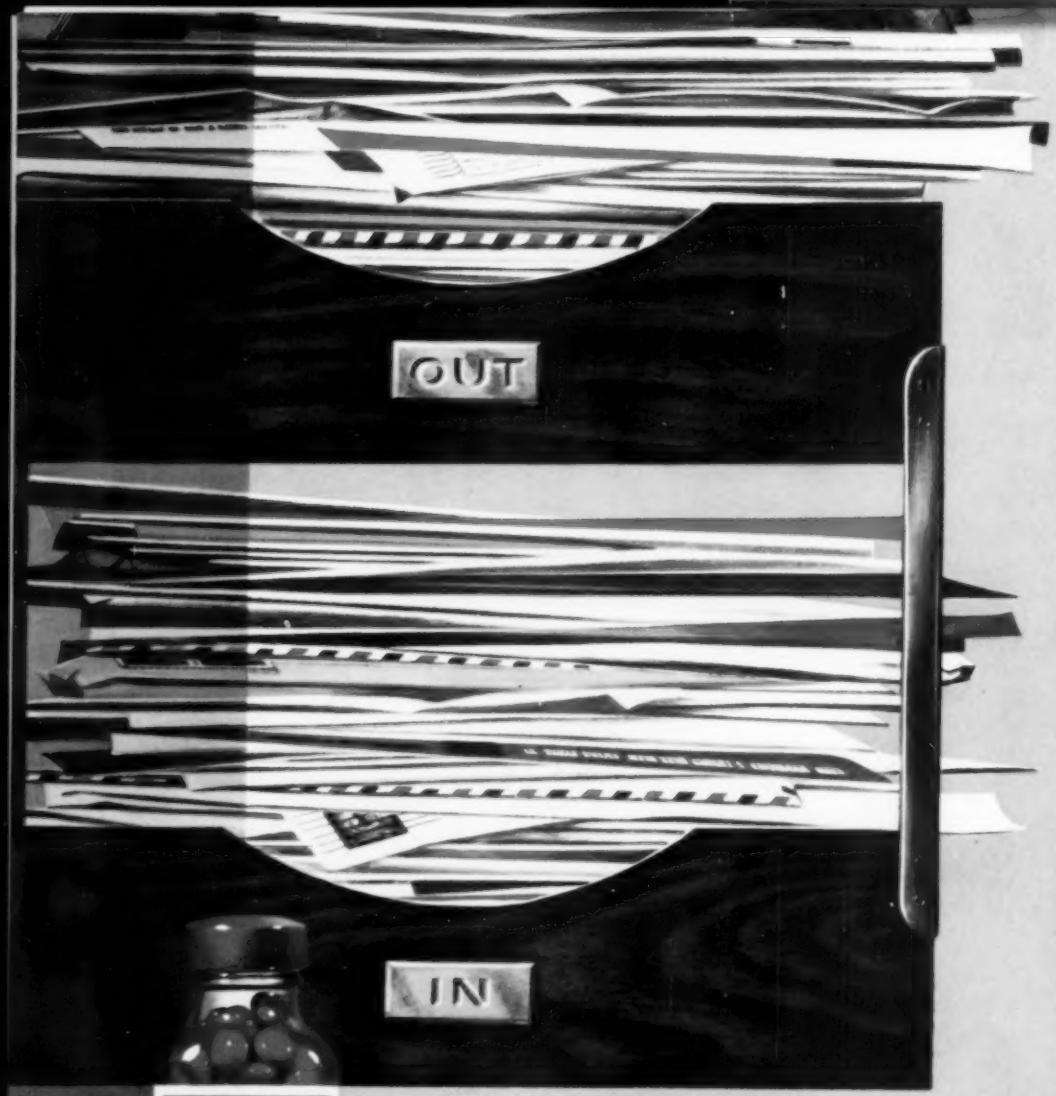
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Even where hydrocortisone, cortisone, and other agents had failed, prednisolone (STERANE) restored articular mobility and functional capacity to normal in rheumatoid arthritis.[1]

Four times more effective than hydrocortisone, and, on the basis of preliminary findings,[2,3] superior in potency even to prednisone (cortisone analog), STERANE is also relatively free of such hormonal side effects as edema, hypertension, or hypopotassemia.

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References: 1. Bunim, J. J., et al.: J.A.M.A. 157:311, 1955. 2. Forsham, P. H., et al.: Paper presented at First Internat. Conf. on Prednisone and Prednisolone, New York, May 31-June 1, 1955. 3. Perlman, P. L., and Tolksdorf, S.: Scientific Exhibit presented at A.M.A. Annual Meet., Atlantic City, June 6-11, 1955.

PFIZER LABORATORIES Division, Chas. Pfizer & Co., Inc. Brooklyn 6, New York

*brand of prednisolone

—Continued from page 144a

rose in six instances, fell in 13 instances, and was unchanged in one. Patients with peptic ulcer did not appear to react differently from those with other digestive disturbances. Also, the average volume, free acidity and output of hydrochloric acid of residual specimens and of the four 15-minute basal specimens during reserpine administration showed no significant change from control values. Side-effects were minimal. It is possible that large doses of reserpine administered over a short time might increase gastric acidity. It is also possible that the tranquilizing effect of well-tolerated doses of reserpine may bring about a secondary decrease in gastric acidity, and thus aid in the management of the patient with peptic ulcer.

Streptomycin and Dihydrostreptomycin

In evaluating the status of streptomycin and dihydrostreptomycin, they are considered together because they share limitations, i.e., bacterial resistance and side-effects. Streptomycin may be administered orally, intramuscularly or intrathecally. The oral dosage is 0.5 to 1.0 gram twice or three times daily, but the usefulness of the drug by this route is limited since intestinal organisms acquire resistance readily. For intramuscular injections, streptomycin

—Continued on page 150a

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This highly authoritative text presents the scientific methods and procedures used by the personnel of the Office of The Chief Medical Examiner in New York City for medicolegal investigations of deaths due to accidental or planned violence or poisoning, deaths due to natural but unknown causes, or deaths which occur under suspicious circumstances. It is based on experience gained in the handling of more than 20,000 such cases yearly.

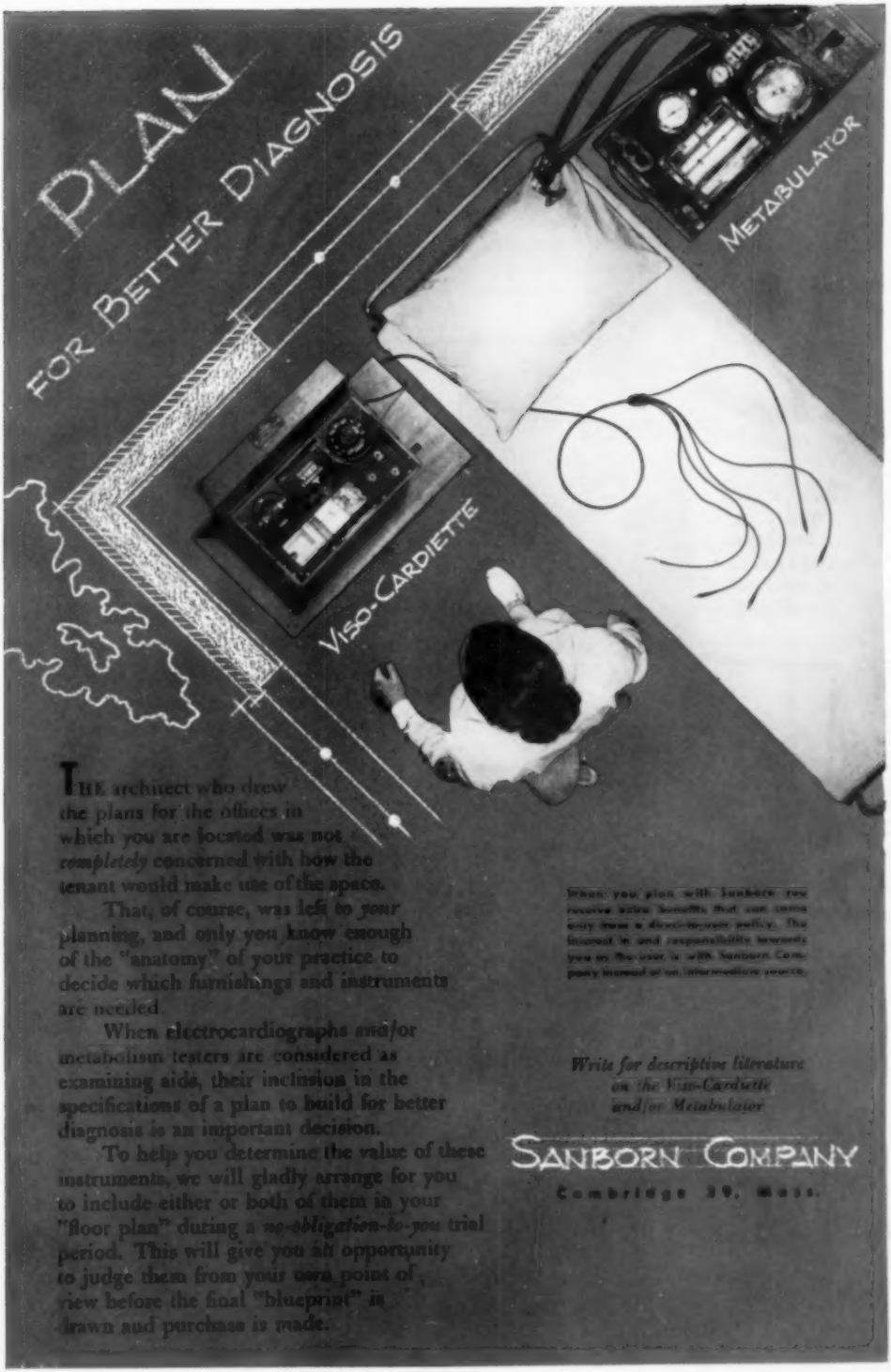
It covers such a wide variety of subjects as investigation at the scene of death; identification; signs of death; the technic of autopsy; unexpected and sudden natural death; types and complications of trauma; blunt force injuries; stab wounds; bullet wounds; traumatic and gas asphyxia; thermic trauma; pregnancy; illegitimacy; abortion; infanticide; virginity; impotence; examinations of semen, blood, hair and other material; clinical examination for organic, inorganic and miscellaneous poisons; rights and obligations of physicians; malpractice; insanity; insurance and survivorship; and a technical section of analytic methods for determining the presence of and identification of various poisons.

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A recent Seminar at the New York Academy of Sciences emphasized the general acceptance by distinguished authorities of the hypothesis that psoriasis depends for its development upon a disturbance of fat metabolism.*

Clinical evidence indicates psoriasis may be due to a disturbance of the lipid metabolism, evidently caused by a deficiency of pancreatic enzymes.*

LIPAN Capsules have been shown to be *clinically effective* in 66.7% cases. This is well above the established minimum for all types of psoriatic therapy of 36.2%.

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Spirt & Co., Inc.
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MODERN THERAPEUTICS

—Continued from page 148a

sulphate (one gram daily) is the preparation of choice, being less painful during injection. Larger doses should not be used continuously for more than five days.

Because of its incapacitating effect on the eighth cranial nerve, dihydrostreptomycin should never be used alone, but in combination with streptomycin. In the use of chemotherapy for active tuberculosis, streptomycin is one of the three agents used in combination that is believed essential for the best results from therapy. In cases of subacute bacterial endocarditis, streptomycin and penicillin given concurrently have produced excellent results, but further evaluation is indicated. Many bacteria are sensitive to streptomycin which is bactericidal in high concentrations and bacteriostatic in lower concentrations.

The drug especially in combined therapy, is widely and successfully used in the management of a number of infections due to gram-negative organisms. The simultaneous administration of two chemotherapeutic agents to which the organism is sensitive doubles the mutation necessary for its protection. Small doses of streptomycin and of dihydrostreptomycin are necessary if ototoxicity is to be kept to a minimum; also, serious impairment of hearing is an ever-present danger. John Macleod of Edinburgh, writing in the *Practitioner* [*176*:5(1956)] believes that these drugs have a clearly defined sphere of use, but untoward reactions must be kept in mind.

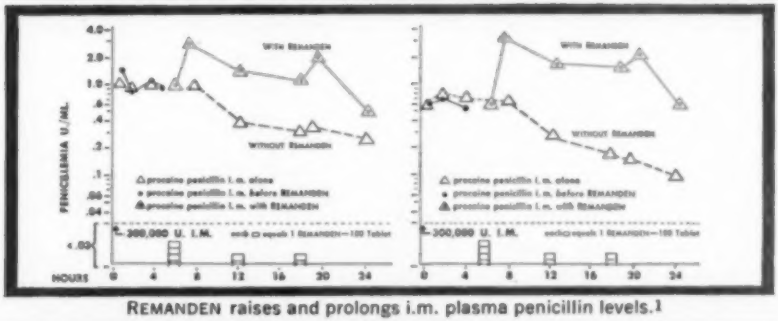
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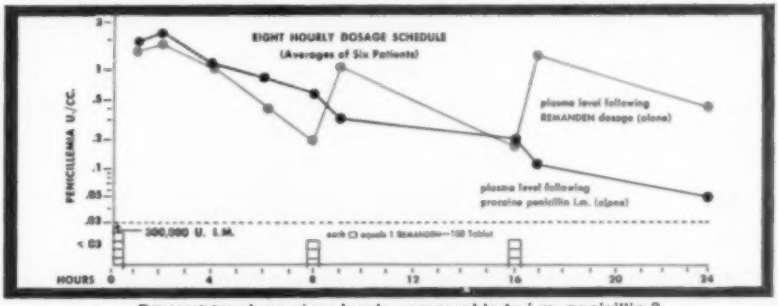
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MAJOR ADVANTAGES: Plays two unique roles in oral penicillin therapy:
(1) Elevates and sustains initial intramuscular plasma penicillin levels,[1]
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REMANDEN alone gives levels comparable to i.m. penicillin.[2]

REMANDEN extends the scope of penicillin therapy. Due to the 'Benemid' component, most of the penicillin is recirculated—without interfering with normal renal function. Unique among oral penicillin preparations, REMANDEN may be given alone in many common infections, or as an adjunct to parenteral therapy of more severe infections.

Supplied: Tablets: REMANDEN-100 and REMANDEN-250, providing 100,000 or 250,000 units of potassium penicillin G with 250 *mg.* of 'Benemid.' Also NEW Suspension REMANDEN-100 (in 60 cc. bottles)—one tsp. equals one REMANDEN-100 tablet.

References: 1. Scientific Exhibit, Norristown State Hospital: Data to be published. 2. Antibiotics and Chemotherapy 2:555, 1952.

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—Continued from page 150a

Chloramphenicol

Chloramphenicol (Chloromycetin) is stable, easily diffusible, and was the first broad-spectrum antibiotic to be made available, for general use. However, now that many other agents are available, it is urged that this drug be used only when its superior effectiveness justifies the possible risk involved. Like the other broad-spectrum antibiotics, gastro-intestinal disturbances frequently follow its use, but its absorption is rapid and these reactions are relatively unimportant. Although the occurrence is infrequent, chloramphenical may have a grave toxic action on the bone marrow resulting in aplastic anemia which is usually fatal. In the case of typhoid fever, administration of this agent has greatly lowered the mortality rate, and decreased the complications. Typical dosage consists of 50 mg. per kg. body weight daily divided into eight-hourly doses. After the temperature returns to normal, a dosage of 30 mg. per kg. body weight is maintained for ten to fourteen days. The action of the drug is bacteriostatic rather than bactericidal to the typhoid bacillus. In influenzal meningitis, chloramphenical being readily diffusible achieves a greater degree of concentration in the cerebrospinal fluid. It may be taken orally or administered by stomach tube. A loading dose of 75 to 100 mg. per kg. body weight is followed by 0.75 to 1.5 grams daily for seven to fourteen days. Clifford Wilson of the University of London, *Practitioner*, [*176*:14(1956)] is of the opinion that the use of chloramphenicol should be confined largely to the treatment of these diseases because of its superior action without the need of prolonged dosage.

Treatment of Nontuberculous Bacterial Meningitis in Children

Bacterial meningitis largely caused by *Hemophilus influenzae* and *Neisseria meningococcus* was treated by the intravenous administration of 20 mg. per Kg. of body weight of chloramphenicol and 10 mg. per Kg. of chlortetracycline every 6 hours for a minimum of 2 or 3 days. Double the above dose was then given orally every 6 hours along with 1 Gm. of chloramphenical a day, given intramuscularly. Therapy was continued for a total of 7 to 14 days. When *Diplococcus pneumoniae* was the offending organism, penicillin in high dosage was added to the regimen.

According to the report in *GP* [*12*: 98(Nov. 1955)] by Burke, Ross, Parrott and Rice, there were only 4 deaths among the 91 cases reported. Seventy per cent of the cases were treated with the above regimen, 15 per cent with chloramphenical, chlortetracycline combined with streptomycin, sulfadiazine and/or penicillin, and 15 per cent received a broad spectrum antibiotic alone.

Intramuscular Dimenhydrinate for Postoperative Vomiting

Dimenhydrinate (Dramamine) was administered to a total of 9,243 patients undergoing surgery. Among these patients the incidence of postoperative vomiting was about 13 per cent. Among 1,502 patients who did not receive Dramamine, the incidence of vomiting was 22.6 per cent. Among 394 patients

—Continued on page 154a



Since the ulcer patient usually can not get away from it all, prescribe MONODRAL with MEBARAL to more effectively isolate the ulcer from the patient physiologically.

MONODRAL with MEBARAL controls hyperacidity by a proved superior antisecretory action.

Controls hyperirritability and hypermotility of the upper gastro-intestinal tract, relieves pylorospasm.

Induces a serenity of mind without affecting mental alertness, softens the emotional impact of environmental stimuli.

Controls the psychovisceral component of peptic ulcer; lessens gastro-intestinal tension by diminishing reflex motor irritability.

MONODRAL with MEBARAL Tablets, 1 or 2 tablets three or four times daily; each tablet containing 5 mg. MONODRAL bromide and 32 mg. MEBARAL. Bottles of 100 tablets.

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FOR COMPLETE CONTROL

of peptic ulcer

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—Continued from page 152a

a "double-blind" study was run to rule out the possibility of personal bias or prejudice. Of these, 199 received no Dramamine. The incidence of vomiting was essentially the same.

More *et al*, writing in *J.A.M.A.* [*159:* 1342(1955)], stated that the incidence of vomiting after surgery was reduced significantly by the administration of Dramamine intramuscularly. The routine of therapy followed was: 50 mg. of Dramamine on call to surgery, 50 mg. upon return from surgery, and 50 mg. every 4 hours for 4 doses, all given by intramuscular injection.

Hydrocortisone Ointment in Dermatoses

A variety of inflammatory dermatoses were treated with hydrocortisone acetate or hydrocortisone free alcohol by local application to 300 patients. The ointment base preferred was a vanishing cream. The concentration employed was mostly either 1 or 2½ per cent.

Reporting in *GP*[*12:*59(Nov. 1955)] Mullins and Shapiro indicated that the acetate and free alcohol were equally effective. Response appeared to be related to the degree of absorption of the drug since lesions on thin-skinned areas and where the skin was broken responded better. In some cases the 2½ per cent ointment gave greater relief, but the 1 per cent concentration was also markedly effective in other cases. Relapses frequently occurred after the discontinuation of therapy. In some of these cases the disease could be controlled with an ointment having a lower concentration of the drug. In other cases the disease was either cured by the drug or suppressed long enough for natural body processes to effect a cure.

—Concluded on page 156a

produced..."normotension in 50 percent and near normotension in an additional 20 percent of 38 patients with mostly severe hypertension..."[1]

Mio-Pressin*

For moderately severe to severe hypertension

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1. Waldron, J. M., et al.: Am. J. M. Sc. 230:551 ★T.M. Reg. U.S. Pat. Off.



when neuritis strikes

how long need it last?

Instead of enduring long weeks of pain and disability, your patients with inflammatory radiculitis (of non-traumatic or non-mechanical origin) can usually be quickly relieved with Protamide. When used promptly—within a few days after onset of pain—complete recovery can be expected in just a few days.

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The Roentgen Aspects Of The Papilla And Ampulla Of Vater

By

MAXWELL H. POPPEL, M.D.
HAROLD G. JACOBSON, M.D.
ROBERT W. SMITH, M.D.

This is a complete presentation of the roentgenologic survey of the anatomy, physiology and pathological states of the Vaterian region. It brings integration and meaning into a complex subject by presenting an inclusive affirmation approach not heretofore attempted.

The abnormalities of adjacent structures (notably the duodenum) are considered. This is especially important in formulating correct differential diagnosis.

Roentgenologically considered, what are the criteria for appraising any given major papilla or Vaterian ampulla as normal or abnormal? The answer cannot be found in the existing roentgen literature so the authors have searched for the answer and set down their findings.

The approach is roentgen study from the basic anatomic (postmortem) and from the practical (in vivo) standpoints. The microscopic pathological findings obtained from surgical specimens and from autopsy material served as a bridge of explanation for those roentgen findings which did not conform to the normal basic anatomical types (including variants).

211 pages 150 illustrations

$8.50, postpaid

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Springfield, Illinois

MODERN THERAPEUTICS

—Continued from page 154a

A New Drug for the Relief of Dysmenorrhea

A uterine relaxing factor obtained from the corpus luteum of sow ovaries, named lututrin, was used by Jones in the treatment of 40 cases of dysmenorrhea. The results of the tests were reported in *Northwest Med.* [*54*:1253 (1955)].

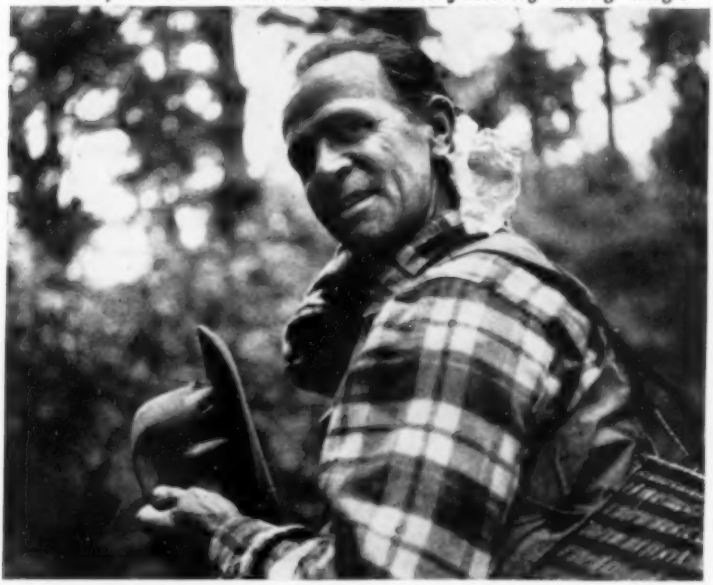
The drug is standardized for potency in terms of units of activity on the guinea pig uterus. Four tablets of 1000 units each were administered orally when cramps first began. Subsequently, 1 to 3 tablets were taken every 3 to 4 hours for as long as necessary to keep the patient free from cramps. No signs of toxicity and no side effects were evident.

Of the 40 patients treated, 87.5 per cent of the patients were greatly benefited. These results were better than those obtained with any other type of treatment used by the author.

Methylpentynol in Alcoholics

A note by Bishop in *Brit. Med. J.* [*4947*:1087 (1955)] pointed out the danger of administering methylpentynol to alcoholics who had lost their craving for alcohol under treatment with apomorphine. When methylpentynol was subsequently administered to the two cases reported, both experienced an irresistible return of their craving for alcohol. The author suggested that methylpentynol, being itself an alcohol, reactivated the addict's craving for beverage alcohol.

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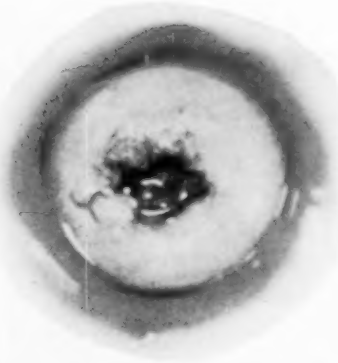
Vitamin A	5000 U.S.P. Units	Rutin	25 mg.
Vitamin D	500 U.S.P. Units	Purified Intrinsic Factor Concentrate	0.5 mg.
Vitamin B_{12}	1 mcgm.	Iron (as $FeSO_4$)	10 mg.
Thiamine Mononitrate (B_1)	5 mg.	Iodine (as KI)	0.5 mg.
Riboflavin (B_2)	5 mg.	Calcium (as $CaHPO_4$)	145 mg.
Niacinamide	15 mg.	Phosphorus (as $CaHPO_4$)	110 mg.
Folic Acid	1 mg.	Boron (as $Na_2B_4O_7.10H_2O$)	0.1 mg.
Pyridoxine HCl (B_6)	0.5 mg.	Copper (as CuO)	1 mg.
Ca Pantothenate	5 mg.	Fluorine (as CaF_2)	0.1 mg.
Choline Dihydrogen Citrate	100 mg.	Manganese (as MnO_2)	1 mg.
Inositol	50 mg.	Magnesium (as MgO)	1 mg.
Ascorbic Acid (C)	50 mg.	Potassium (as K_2SO_4)	5 mg.
Vitamin E (as tocopheryl acetates)	10 I.U.	Zinc (as ZnO)	0.5 mg.

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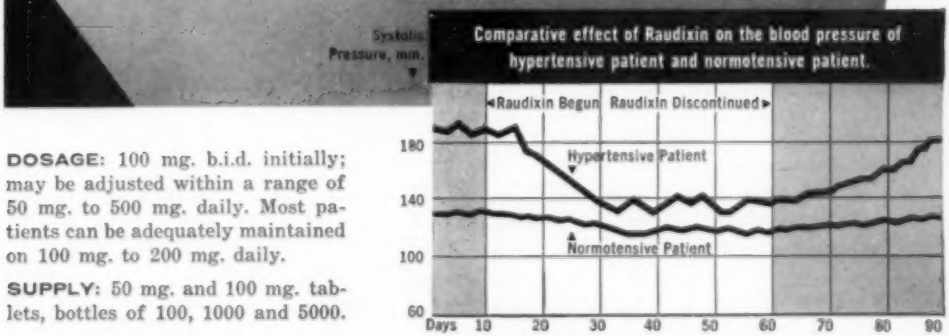
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in anxiety and tension states . . .

stable ataractic (tranquilizing) effect
without excessive sedation

in hypertension . . .

stable hypotensive effect without rapid peaks and declines in blood pressure



The hypotensive action of Raudixin is selective for the hypertensive state. For this reason, Raudixin does not significantly affect the blood pressure of normotensive patients.

DOSAGE: 100 mg. b.i.d. initially; may be adjusted within a range of 50 mg. to 500 mg. daily. Most patients can be adequately maintained on 100 mg. to 200 mg. daily.

SUPPLY: 50 mg. and 100 mg. tablets, bottles of 100, 1000 and 5000.

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NEWS AND NOTES

Newborn Infant Develops Own Polio Immunity

Infant born while their mothers have acute polio may be infected without showing outward signs, two Maryland physicians said today.

In a recent issues of the *Journal of the American Medical Association*, they told of a newborn baby who acquired polio from his mother before or during birth, developed his own immunity to the disease, and never showed signs of infection.

As far as the doctors know, this is the first reported case of infection without outward signs in an infant born during the mother's acute phase of polio. Further investigation, though, may show this sort of infection to be common, they said.

The infant, born about two weeks after the mother developed an acute case of polio, was "normal" and remained "well" at all times. However, laboratory examination of rectal swabs showed him to be infected with the same polio virus as his mother was.

Examination of his blood serum revealed many antibodies. At three months, the infant's antibody level was approximately the same as his mother's.

He apparently manufactured his own antibodies, since the cord fluid at birth contained very few and he was never breast fed, they said. This indicates that the mechanism for manufacturing antibodies was well developed even in the first months of life, they said.

The infant probably acquired the infection before birth, since the placenta contained viruses. However, he may have been contaminated with the mother's virus during delivery, they said.

The report was made by Drs. Alexis Shelokov and Karl Habel from the laboratory of infectious diseases, National Microbiological Institute, National Institutes of Health, Bethesda, Md.

Cataract Disappears Spontaneously

The spontaneous disappearance of a cataract in the eye 29 years after it developed has been reported by a New York ophthalmologist.

Dr. Norman Corin, Jamaica, N. Y., said that he knows of only five other cases (two in adults) in which a cataractous lens, one which has become opaque, was spontaneously absorbed.

A woman had been able to perceive only light with her left eye for 29 years after an eye inflammation. The right eye had remained normal.

In March, 1955, the left eye became red, acutely painful, and abnormally sensitive to light. Examinations showed that the lens and its capsule were completely gone, absorbed by the surrounding substance.

She was given glasses which corrected the sight in that eye to the normal 20/20 vision. The eye has remained sympton-free, he said.

Dr. Corin made his report in a re-

—Continued on page 164a

NEW CONCEPT IN URINE-SUGAR TESTING

CLINISTIX

TRADEMARK

REAGENT STRIPS

specific enzyme test for urine glucose



just dip and read



complete specificity...unaffected by non-glucose reducing substances...differentiates glucose from other urine-sugars... thousands of tests reveal no substance causing a false positive.

extreme sensitivity...detects glucose concentrations of 0.1% or less.

utmost simplicity and convenience...a CLINISTIX Reagent Strip moistened with urine turns blue when glucose is present.

qualitative accuracy...used whenever presence or absence of glucose must be determined rapidly and frequently. CLINISTIX does not attempt to give quantitative results because so many factors in urine influence enzyme reactions.

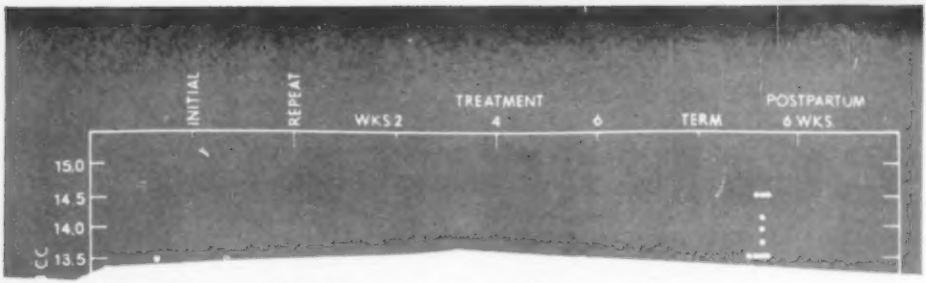
economy...CLINISTIX saves time and cuts costs...each strip is a complete test rapidly performed without reagents and equipment.

available: Packets of 30 CLINISTIX Reagent Strips in cartons of 12—No. 2830.

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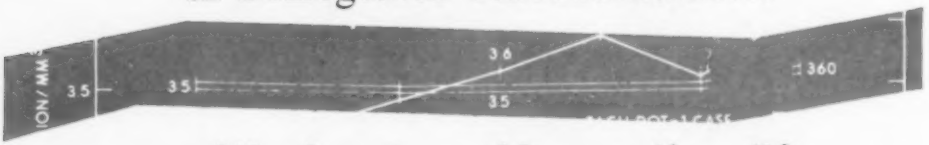
"...in a higher percentage of cases...



...a greater increase



in hemoglobin concentration...



*...with almost no side reactions."**



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MOLYBDENIZED FERROUS SULFATE

Mol-Iron Liquid **Mol-Iron Drops**

*Forman, J. B.: Anemia of Pregnancy, Connecticut M. J. 14: 930 (Oct.) 1950. Extensive bibliography on request.

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All the benefits of prednisone and prednisolone plus positive antacid action to minimize gastric distress



Multiple Compressed Tablets of 'Co-Deltra' and 'Co-Hydeltra' are designed to help the physician cope with the problem of gastric distress which might otherwise become an obstacle to therapy with prednisone and prednisolone. Each Multiple Compressed Tablet is formulated as a "tablet within a tablet" to provide stability and to release in sequence antacid and anti-inflammatory components.

NEW

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Prednisone Buffered

MULTIPLE COMPRESSED TABLETS

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Prednisolone Buffered

Supplied: Multiple Compressed Tablets of 'Co-Deltra' and 'Co-Hydeltra', each containing 5 mg. prednisone or prednisolone, 300 mg. of dried aluminum hydroxide gel, U.S.P., and 50 mg. of magnesium trisilicate, U.S.P., bottles of 30 tablets. 'Co-Deltra' and 'Co-Hydeltra' are the trademarks of Merck & Co., Inc.

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ITCHY, IRRITATED SCALP CONDITIONS RECOMMEND

HERBEX PINK OINTMENT

ACTIVE INGREDIENTS:
THYMOL, SALICYLIC ACID, SULPHUR, GLYCERINE,
Petrolatum Base

Sample on Request

PARKER HERBEX CORP.
STAMFORD, CONNECTICUT
ESTABLISHED 1880

—Continued from page 160a

cent issue of *Archives of Ophthalmology*.

Dentist Describes Ear Protector

A dentist has suggested a way of keeping water out of the ears while swimming.

Jacob Schaffer, D.D.S., Newark, N. J., outlined the method in a recent issue of *Archives of Otolaryngology*.

A cast of the inside of the outer ear is made of a plastic material (acrylic) used in making dentures. An impression of the entire ear is taken with an elastic material. A model is then poured and a semisoft acrylic cast is formed. When finished the cast will lock into the ear and be a self-retentive complete seal, he said.

The seal is especially useful for persons with perforated ear drums or with healed postoperative cavities, Dr. Schaffer said.

Bandages Left Off Surgical Wounds

Further evidence of the safety and practicality of leaving clean chest and abdomen surgical wounds uncovered by dressings was given today by three Des Moines, Iowa, Veterans Administration hospital physicians.

They said in a recent issue of the *Journal of the American Medical Association* that clean wounds without dressings appear to heal more rapidly and with less reaction than covered wounds.

In addition, the nondressing of such

—Continued on page 166a

because
your allergic patients
need a lift
a new R_x . . .



Plimasin®

(tripelennamine hydrochloride and methyl-phenidylacetate CIBA)

new, mild stimulant
and antihistamine

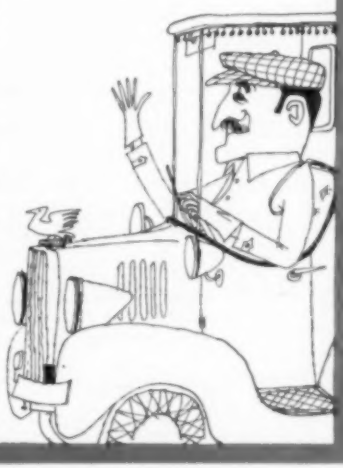
boost their spirits . . . relieve their allergic symptoms

So often the allergic patient is tired, irritable, depressed—mentally and physically debilitated. Frequently, antihistaminic agents themselves are sedative, adding to this already fatigued and disconsolate state.

Plimasin, because it combines a proved antihistamine with a new, mild psychomotor stimulant, overcomes depression and fatigue while it achieves *potent* antiallergic effects. Its new stimulant component—Ritalin—is totally different from amphetamine: smoother, gentler in action, devoid of pressor effect.

DOSAGE: *One or 2 tablets as required.*

Each Plimasin tablet contains 25 mg. Pyribenzamine® hydrochloride (tripelennamine hydrochloride CIBA) and 5.0 mg. Ritalin® (methyl-phenidylacetate CIBA).



C I B A SUMMIT, N. J.

2/2191M

—Continued from page 164a

wounds is convenient, save surgical dressings costs and the time of doctors and nurses, and eliminates the cumbersome dressings and irritation of adhesive tape, Drs. Louis T. Palumbo, Philip J. Monnig, and Dudley E. Wilkinson said.

The method was first recommended before 1920, but has not been used extensively, they said.

Beginning in June, 1954, the doctors conducted a study of 211 consecutive cases with 222 clean surgical wounds of the abdomen and/or the chest. Of this group, 106 patients with 111 wounds were treated without surgical dressings and 105 patients with 111 wounds with dressings.

Those with dressings were cared for in the conventional manner, with the bandages being removed from nearly all six to eight days after surgery. In the other group, all but three had their dressings removed within 24 hours and the wound left uncovered. The remaining three had their dressings removed within 48 hours after surgery.

In only one case did the patient complain of the wound being irritated by the sheets or pajamas. The patients raised no objection to the program and "even welcomed" the opportunity to watch the healing of their wounds, the authors said.

New England Hospital Builds International Good Will

A new approach to the training of foreign physicians, developed by the New England Hospital in Boston, is described in a recent issue of the *Journal of the American Medical Association.*

Recently launched by the 93-year-old hospital, the program is designed to meet the social, psychological and medical training needs of alien physicians studying in the hospital, Dr. Carl Bearse, Boston, said. Although designed to aid women physicians, the plan is applicable to both men and women.

Since these doctors' English is seldom fluent, the program includes an intensive English course, with emphasis on idioms and medical vocabulary, during the first month. Demonstrations of American medical techniques are also included in the introductory month.

In the year's medical training which follows, the usual house officers' activities are supplemented by weekly lectures in the basic sciences. Tours and social activities are arranged, so the visitors may meet American business and professional people, as well as people from their own countries.

With more than 5,000 alien physicians from 83 different countries annually training in the United States, hospitals have a vast potential for building international good will, Dr. Bearse said, suggesting that the New England Hospital plan might be used in other hospitals.

Given proper indoctrination, foreign house officers not only can be valuable to American hospitals during their training period, but, on returning home, can exert a powerful influence as emissaries of good will among their patients in their own countries, he said.

Approximately 60 per cent of the hospitals approved for residencies and internships have alien physicians on their house staffs. The physicians constitute up to one-fourth of all the residents in the country, he said.

—Continued on page 168a



BUTIBEL®

combines tension-relieving Butisol® Sodium with spasm-relaxing natural belladonna

...both agents have approximately equal durations of action (no overlapping sedation or inadequate spasmolysis).

...less danger of accumulation or development of tolerance from Butisol Sodium—even with frequent, prolonged use.

Each tablet or 5 cc. (one teaspoonful) of Butibel represents:
Butisol Sodium 10 mg. (⅙ gr.)
Ext. Belladonna 15 mg. (¼ gr.)

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doses of ACTH
have been given

HP*ACTHAR® *Gel*

The Armour Laboratories brand of purified adrenocorticotropic hormone—corticotropin (ACTH)

Unsurpassed in safety and efficacy

In a series of patients treated continuously with Armour ACTH for at least 5½ years[1] . . .

- Each responded with a maintained increase in cortical function
- Major and minor surgical and obstetrical procedures caused no incidents
- Sudden discontinuance of ACTH did not provoke a crisis



. . . and HP*ACTHAR *Gel* should be used routinely to minimize adrenal suppression and atrophy in patients treated with prednisone, prednisolone, hydrocortisone and cortisone.

HP*ACTHAR *Gel* (In Gelatin) is the most widely used ACTH preparation

*Highly purified

1. Wolfson, W. Q.: Mississippi Valley M. J. 77: 66, 1955.

THE ARMOUR LABORATORIES
A DIVISION OF ARMOUR AND COMPANY • KANKAKEE, ILLINOIS

—Continued from page 166a

Dr. Bearse is consultant in the department of surgery, and advisory consultant in the department of education international program at New England Hospital.

County Medical Groups Have Wide Range of Activities

Activities of the nation's county medical societies ranged from cancer and tuberculosis control programs to sponsorship of Little League baseball teams during 1954-55, a recent American Medical Association survey showed.

Nearly 64 per cent of the 1,931 county medical societies in the United States and its territories replied to a questionnaire on their professional, educational, and community programs, circulated by the A.M.A.'s council on medical service.

"There appeared to be a growing awareness by all societies—both large and small—of the need for them to become participants in community activities," a report in a recent issue of the *Journal of the American Medical Association* said.

Telephone-answering services and emergency call systems, which help patients reach physicians at all times, were maintained by many societies, especially in large cities.

Activities aimed at developing better relations between the medical profession and the public included grievance committees, which serve as "appeal boards" for patients with complaints; medical economic committees, which maintain business services for doctors

—Continued on page 170a



to restore appetite and promote weight gain

LACTOFORT®

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...with growth promoting L-lysine
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...plus iron and calcium...

Improves protein utilization—
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Supplied: In 46 Gm. bottles with special Lactofort measuring spoon enclosed.

2 measures (2.3 Gm.) of Lactofort supply:

L-Lysine Monohydrochloride	660 mg.*
Vitamin A Acetate	3,750 U.S.P. units
Vitamin D	1,000 U.S.P. units
Thiamine Mononitrate	0.75 mg.
Riboflavin	1.25 mg.
Niacinamide	7.5 mg.
Vitamin B_{12}	2.5 mcg.
Folic Acid	0.25 mg.
Ascorbic Acid (from Sodium Ascorbate)	75 mg.
Pyridoxine Hydrochloride	0.75 mg.
Calcium Pantothenate	7.5 mg.
Iron (elemental) (from Iron Ammonium Citrate Green)	7.5 mg.
Calcium (elemental) (from Calcium Gluconate)	130 mg.

*Equivalent to 500 mg. L-lysine

a dry stable powder • odorless • tasteless • readily soluble

White's WHITE LABORATORIES, INC., Kenilworth, New Jersey

NEWS AND NOTES

—Continued from page 168a

and the public, and public relations committees, which help to promote better understanding by the public of the societies' aims and activities.

In order to interpret their activities to the layman, societies maintained speakers' bureaus and sponsored state and county fair exhibits, health fairs, special community health days, radio and television programs, and newspaper health columns.

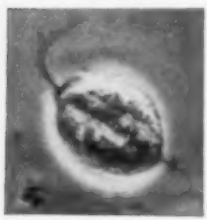
They attempted to promote better health in their communities by participating in programs to provide medical care for the indigent and by activity in county or city health councils, which are voluntary associations of community agencies interested in various aspects of health.

Disease control programs included cancer, tuberculosis, diabetes, rheumatic fever, and venereal disease. Many societies had committees dealing with special medical problems, such as care of the aged and the chronically ill, rehabilitation, maternal and child care, mental health, public health, and alcoholism.

In addition, they sponsored school health and safety programs, many running poster and essay contests in schools. Societies also participated in such diverse community projects as community chest drives, slum-clearance programs, vocational guidance, better

—Concluded on page 172a

HOW DAVIS TECHNIC **EXPLODES** HIDDEN TRICHOMONADS



Too often treatment fails to cure vaginal trichomoniasis because parasites survive and set up new foci of infection.

Now you can overcome this problem with VAGISEC® liquid and jelly, using the Davis technic.† VAGISEC liquid dissolves mucinous materials, penetrates thoroughly, and quickly reaches and explodes the hidden trichomonads.

Proved highly effective. VAGISEC liquid (originally "Carlendacide") is the formula developed by Dr. Carl Henry Davis, noted gynecologist and author, and C. G. Grand, research physiologist.[1] Clinical data show better than 90 per cent success with VAGISEC.[2]

Overwhelmingly powerful. VAGISEC liquid explodes trichomonads within 15 seconds of contact![3] Three surface-acting agents attack the parasite: A chelating agent removes the calcium of the calcium proteinate; a wetting agent removes the lipids; a detergent denatures the protein.

The Davis technic. VAGISEC liquid, as a vaginal scrub, is used in office therapy. VAGISEC liquid and jelly are for home use.

Prevent re-infection. Many wives become re-infected because husbands harbor trichomonads.[3] To prevent re-infection, prescribe the protection afforded by Schmid high quality condoms—the superior RAMSES® rubber prophylactic, transparent and tissue-thin, yet strong, or XXXX (FOUREX)® skins of natural animal membrane, pre-moistened.

References: 1. Davis, C. H., and Grand, C. G.: Am. J. Obst. & Gynec. 68:559 (Aug.) 1954. 2. Davis, C. H.: West. J. Surg. 63:53 (Feb.) 1955. 3. Davis, C. H.: J.A.M.A. 157:126 (Jan. 8) 1955.

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a "judicious combination..."

for antiarthritic therapy

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That cortisone and the salicylates have a complementary action has been well established.[1-5] In rheumatic conditions, functional improvement and a sense of feeling well are noted early. No withdrawal reactions have been reported.

One clinician states: "By a judicious combination of the two agents . . . it has been possible to bring about a much more favorable reaction in arthritis than with either alone. Salicylate potentiates the greatly reduced amount of cortisone present so that its full effect is brought out without evoking undesirable side reactions."[1]

INDICATIONS:

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EACH TABLET CONTAINS:

Cortisone acetate	2.5 mg.
Sodium salicylate	0.3 Gm.
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Calcium ascorbate	60 mg.
(equivalent to 50 mg. ascorbic acid)	
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* U.S. Pat. 2,691,662

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2. Roskam, J., VanCawenberge, H.: Abst. in J.A.M.A., 151:248 (1953).
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—Concluded from page 170a

government movements, mosquito control, and Little League baseball programs.

American College of Chest Physicians Schedule

The 22nd Annual Meeting of the American College of Chest Physicians will be held at the Hotel Sherman, Chicago, Illinois, June 6 through 10, 1956. The scientific program will include prominent speakers on all aspects of heart and lung diseases. In addition to formal presentations, there will be a number of symposia, round table luncheon discussions, seminars, and motion pictures.

The Fireside Conferences, which were inaugurated at the annual meeting of the College in 1955 and proved to be so popular, will be repeated. At this session, more than 50 experts will be present to lead the discussions on many subjects of current interest in the specialty of diseases of the chest.

Examinations for Fellowship in the College will be held on Thursday, June 7. On Saturday evening, June 9, more than 150 physicians will receive their certificates of Fellowship at the annual Convocation, which will precede the Presidents' Banquet.

All interested physicians are cordially invited to attend the 22nd Annual Meeting of the College; there is no registration fee. Copies of the program may be obtained by writing to the Executive Offices, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

New
Evidence
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Rauwiloid®

confirms and defines superiority over other Rauwolfia preparations in the treatment of HYPERTENSION

- Rauwiloid represents the balanced, mutually potentiated actions[1] of several Rauwolfia alkaloids, of which reserpine and the equally antihypertensive rescinnamine have been isolated.
- Hence, reserpine is not the total active antihypertensive principle of the rauwolfia plant.
- Rauwiloid is freed of the undesirable alkaloids of the whole rauwolfia root. Recent investigations confirm the desirability of Rauwiloid (because of the balanced action of its contained alkaloids) over single alkaloidal preparations; "...mental depression...was...less frequent with alseroxylon..."[2]

The dose-response curve of Rauwiloid is flat, and its dosage is uncomplicated and easy to prescribe...merely two 2 mg. tablets at bedtime.

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Rauwiloid is the original alseroxylon fraction of India-grown Rauwolfia serpentina, Benth., a Riker research development.

LOS ANGELES



"I still say it's Lupus Erythematosus!"

STOP *using soap!*



soap irritation can waste sound dermatologic therapy

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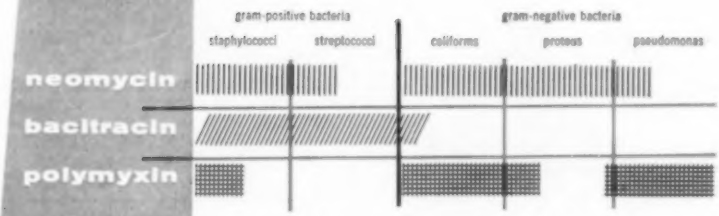
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combined, these antibiotics cover the entire spectrum of bacteria most often found in topical lesions

THESE ANTIBIOTICS WORK BEST IN THE UNIQUE *Fuzene® base...*

The Fuzene base releases high antibiotic concentrations impossible with grease-base ointments



Comparative inhibition of Pseudomonas by Neo-Polycin (in the Fuzene base) and product A—a grease base ointment.

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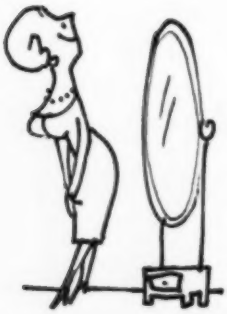


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OPPORTUNITIES AVAILABLE IN VIRGINIA —For vacancies to be created by retirements beginning March 1, 1956. (1) Two assistant directors of local health departments; applicants without public health training or experience given on-the-job training and paid a beginning salary of $8400; must be under 38. (1) Two directors of local health departments; salary $9600 to $11,472; must be under 50 with recognized public health training experience; applicants must be American citizens and eligible for Virginia licensure; liberal sick leave, vacation, and retirement benefits. Write: Director of Local Health Services, State Department of Health, Richmond 19, Virginia.

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Salicylates again endorsed for rheumatoid arthritis

New evidence on the comparative effectiveness of acetylsalicylic acid and cortisone in rheumatoid arthritis reveals that the progress of patients on salicylates is comparable to progress on cortisone. And a recent survey of members of the American Rheumatism Association indicates overwhelming preference for salicylates.

Modern salicylate therapy at its best

Pabirin combines acetylsalicylic acid with PABA to achieve *high* salicylate blood levels with *low* dosage. Vitamin C (300 mg.) in a daily dosage of 6 capsules helps counteract depletion in salicylate therapy. Pabirin stops pain fast; it is a rapidly disintegrating capsule, not an enteric-coated tablet.

No adrenal atrophy, electrolyte imbalance

Pabirin circumvents the potential hazards of steroid therapy, such as adrenal atrophy, while being equally effective. It contains neither sodium nor potassium, an advantage when either of these electrolytes must be restricted.

Bibliography:
Joint Committee of the Medical Research Council and Nuffield Foundation: Brit. M. J. *2*:695 (Sept. 17) 1955.
Editorial: Brit. M. J. *2*:725 (Sept. 17) 1955.
Lowman, E. W., and others: GP *12*:69 (Nov.) 1955.

Each capsule contains:

Acetylsalicylic acid	(5 gr.) 300 mg.
Para-aminobenzoic acid	(5 gr.) 300 mg.
Ascorbic acid	50 mg.

Average dose: 2 to 3 capsules 3 or 4 times daily.

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